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69th session
Agenda item 22

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**REPORT OF THE MARITIME SAFETY COMMITTEE
ON ITS SIXTY-NINTH SESSION**

Attached are annexes 14 to 24 to the report of the Maritime Safety Committee on its sixty-ninth session (MSC 69/22).

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(See MSC 69/22/Add.1 for annexes 1 to 13)

ANNEX 14

AMENDMENTS TO SECTION B-VIII/2, PART 5 OF THE STCW CODE

- 1 Insert the following new paragraph 37:

"Guidance on establishing programmes

37 Those involved in establishing drug and alcohol prevention programmes should take into account the guidance contained in the ILO publication "Drug and Alcohol Prevention Programmes in the Maritime Industry (A Manual for Planners)", as may be amended*".

- 2 Insert the following new footnote:

"* Annex III of this Manual includes "Guiding Principles on Drug and Alcohol Testing Procedures for Worldwide Application in the Maritime Industry". These Guiding Principles were adopted by the Joint ILO/WHO Committee on the Health of Seafarers (May 1993)."

- 3 Reference to MSC/Circs.595 and 634 in the footnote are deleted.

ANNEX 15

DRAFT ASSEMBLY RESOLUTION

**RECOMMENDATIONS ON TRAINING OF PERSONNEL
ON MOBILE OFFSHORE UNITS (MOUs)**

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

CONSIDERING that personnel on mobile offshore units (MOUs) are often required to work under potentially hazardous conditions and if adequately trained will be in a better position to protect themselves and others in the event of an emergency,

RECOGNIZING the need for maritime safety and emergency preparedness training for all personnel working on MOUs,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its sixty-ninth session,

1. ADOPTS the Recommendations on Training of Personnel on mobile offshore units (MOUs), set out in the Annex to the present resolution;
2. URGES Governments concerned to implement the defined competencies in these Recommendations as soon as practicable and to issue certificates and all other appropriate documents to personnel who are qualified and have successfully completed the training recommended in this resolution;
3. URGES ALSO Governments to consider acceptance of certificates and documents based on this resolution;
4. AUTHORIZES the Maritime Safety Committee to keep the annexed Recommendations under review and amend them as necessary;
5. REVOKES resolutions A.538(13), A.712(17) and A.828(19).

ANNEX

RECOMMENDATIONS ON TRAINING OF PERSONNEL ON MOBILE OFFSHORE UNITS (MOUs)

1 SCOPE

1.1 These recommendations provide an international standard for training for all personnel on mobile offshore units aimed at ensuring adequate levels of safety of life and property at sea and protection of the marine environment complimentary to that required by the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, as amended and the Seafarers' Training, Certification and Watchkeeping (STCW) Code.

1.2 The provisions of these recommendations are without prejudice to any rights of coastal States under international law to impose their own additional requirements relating to training, qualifications and certification of personnel on board units engaged, or intending to engage, in the exploration for, or exploitation of, the natural resources of those parts of the sea-bed and subsoil over which those States are entitled to exercise sovereign rights.

2 TERMS AND DEFINITIONS

2.1 For the purpose of these recommendations the terms used have the meanings defined hereunder:

- .1 **Mobile offshore units (MOUs)** means vessels which can be readily relocated and can perform an industrial function involving offshore operations other than those traditionally provided by vessels covered by chapter I of the 1974 SOLAS Convention. Such MOUs include at least the following:
 - .1 **column-stabilized unit** is a unit with the main deck connected to the underwater hull or footings by columns or caissons;
 - .2 **non-self-propelled unit** is a unit not certified to navigate independently;
 - .3 **self-elevating unit** is a unit with movable legs capable of raising its hull above the surface of the sea;
 - .4 **self-propelled unit** is a unit certified to navigate independently;
 - .5 **submersible unit** is a unit with a ship shape, barge-type or novel hull design (other than a self-elevating unit) intended for operation while bottom bearing;
 - .6 **surface unit** is a unit with a ship- or barge-type displacement hull of single- or multiple-hull configuration intended for operation in the floating condition.
- .2 **Mobile offshore drilling unit** is a unit capable of engaging in drilling operations for the exploration for, or exploitation of, resources beneath the sea-bed such as liquid or gaseous hydrocarbons, sulphur or salt.
- .3 **Drillship** is a self-propelled ship shape monohull surface mobile offshore drilling unit.

- .4 **Mobile offshore accommodation unit** is a unit, the primary purpose of which is to accommodate personnel working offshore.
- .5 **Other mobile offshore unit** is a unit which may be involved in any single activity or combination of activities such as:
- construction;
 - maintenance (including the maintenance of wells);
 - lifting operations;
 - pipe laying and related operations;
 - emergency preparedness / contingency including fire fighting;
 - units used for offshore production systems; and
 - diving.

Mobile offshore units do not include vessels such as:

- supply vessels;
 - standby vessels;
 - anchor handling vessels;
 - seismic vessels; and
 - ship shape monohull diving support vessels.
- .6 **Maritime safety training** means training with respect to safety of life at sea, including personal and group survival.
- .7 **Emergency preparedness training** means training which prepares individuals to respond adequately and safely to anticipated emergency situations.
- .8 **Offshore installation manager (OIM)** means a competent person appointed in writing by the owner as the person in charge and who has complete and ultimate command of the unit and to whom all personnel on board are responsible.
- .9 **Barge supervisor** means a person who may provide support to the OIM in certain essential marine matters. The barge supervisor on some MOUs may be referred to as the stability section leader or barge master.
- .10 **Ballast control operator** means the person assigned responsibility for the normal day-to-day control of trim, draught and stability.
- .11 **Maintenance supervisor** means the person assigned responsibility for the inspection, operation and testing, as required, of all machinery and equipment as specified by the owner of the MOU. The maintenance supervisor on some MOUs may also be referred to as the chief engineer, technical section leader or rig mechanic.
- .12 **Special personnel** means all persons carried on board a mobile offshore unit in connection with the special purpose of the unit or with special work being carried out on the unit and who are neither seafarers nor directly or indirectly paying passengers.
- .13 **Maritime crew** comprises the OIM, barge supervisor, ballast control operator and maintenance supervisor as well as other deck and engineer officers, radio operators and ratings as defined in regulation I/1, chapter I of the STCW Convention, as amended.

- .14 **Mode of operation** means a condition or manner in which a unit may operate or function while on location or in transit. The modes of operation of a unit include the following:
- .1 **Operating conditions:** conditions wherein a unit is on location for the purpose of conducting operations, including drilling and production activities, and combined environmental and operational loadings are within the appropriate design limits established for such operations. The unit may be either afloat or supported on the sea-bed, as applicable.
 - .2 **Survival conditions:** conditions wherein a unit may be subjected to the environmental loadings in excess of those established by the unit's operating manual. It is assumed that routine operations will have been discontinued due to the severity of the environmental loading. The unit may be either afloat or supported on the sea-bed, as applicable.
 - .3 **Transit conditions:** conditions wherein a unit is moving from one geographical location to another.
 - .4 **Combined operations:** operations in association with, or close proximity to another mobile offshore unit or offshore installation where conditions on the other unit or installation may have an immediate impact of the safety of the unit; for example, a mobile offshore drilling unit attached to a fixed platform.
- .15 **Muster list** means the list prescribed by an international convention or recommendation which applies to the unit. If no convention or recommendation applies, it means a similar list which indicates essential information on actions to be taken in the event of an emergency, in particular the station to which each person should go and the duties that person should perform including the designation of individual responsibilities for the safety of others.
- .16 **Administration** means the Government of the State whose flag the MOU is entitled to fly.
- .17 **Coastal State Administration** means the Government of the coastal State concerned, where a MOU would be engaged in exploration for, or exploitation of, the sea-bed and subsoil thereof, adjacent to the coast over which the coastal State exercises sovereign rights for the purposes of exploration and exploitation of their natural resources.

3 RESPONSIBILITIES OF COMPANIES AND PERSONNEL

3.1 Companies employing personnel assigned to duty on mobile offshore units, offshore installation managers and offshore personnel each have responsibility for ensuring that standards set out in these recommendations are given full and complete effect. In addition, other measures as may be necessary should be taken to ensure that personnel can make knowledgeable and informed contributions to the safe operation of the unit.

3.2 The owner of the mobile offshore unit should provide written instructions to the offshore installation manager setting forth the procedures to be followed to:

- .1 provide appropriate documentation of training for all personnel working on MOUs which indicates that training in accordance with this standard and, as applicable, the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978 as amended, has been accomplished; and
- .2 maintain training records on the unit.

3.3 The OIM should designate a knowledgeable individual who will be responsible for ensuring that an opportunity is provided to each newly assigned individual to receive essential information in a language that he or she understands.

4 MARITIME CREW ON SELF-PROPELLED MOBILE OFFSHORE UNITS AND, WHERE REQUIRED, ON OTHER UNITS

4.1 All maritime crew members on self-propelled mobile offshore units and, where required, on other units should meet the requirements of the STCW Convention, as amended.

4.2 In addition to meeting the requirements referred to in paragraph 4.1 above, all maritime crew members should be given on-board training and instruction in types of emergencies which might occur on the particular type of mobile offshore unit on which they serve.

5 MINIMUM STANDARDS FOR FAMILIARIZATION AND BASIC SAFETY TRAINING INSTRUCTION AND COMPETENCES FOR ALL PERSONNEL

5.1 Offshore personnel are, for practical reasons, divided into four categories:

Category A: Visitors and special personnel not regularly assigned who are on board for a limited period of time in general not exceeding three days and have no tasks in relation to normal operations of the unit.

Category B: Other special personnel without designated responsibility for the safety and survival of others.

Category C: Regularly assigned special personnel with designated responsibility for the safety and survival of others.

Category D: Maritime crew members.

5.2 Familiarization training (all personnel)

5.2.1 Before being assigned to duties related to the regular operations of the unit, all personnel (categories A, B, C and D) should receive offshore orientation, familiarization training or sufficient information and instruction in personal survival techniques and workplace safety. Such familiarization training, information or instruction should ensure that personnel are able to:

- .1 communicate with other persons on board on elementary safety matters and understand safety information symbols, signs and alarm signals; especially with regard to knowing what to do if:
 - .1 a person falls overboard,
 - .2 fire, smoke, or hydrogen sulphide is detected; or

- .3 the fire, abandon ship, toxic gas, or other general alarm is sounded;
- .2 locate and don lifejackets and, if provided, immersion suits;
- .3 identify muster and embarkation stations and emergency escape routes;
- .4 raise the alarm and have a basic knowledge of the use of portable fire-extinguishers;
- .5 take immediate action upon encountering an accident or other medical emergency on board;
- .6 close and open the fire, weathertight and watertight doors fitted on the unit, other than those for hull openings;
- .7 follow the unit's basic safe work practices and permit-to-work system; and
- .8 the unit's basic organizational structure and chain of command.

5.2.2 In the case of persons not staying onboard overnight, the training, information or instruction provisions specified in paragraphs 5.2.1.1.4 to 5.2.1.1.8 above may be reduced in scope or omitted provided such persons are accompanied by knowledgeable individuals while on the unit.

5.2.3 A generalized course of offshore safety training or instruction obtained onshore may satisfy this requirement provided it is supplemented with the training, information or instruction specified in 5.2.1.1.3 and 5.2.1.1.8 above.

5.2.4 Familiarization training should be provided at intervals not greater than five years.

5.2.5 Individuals should be required to provide evidence of having received familiarization training within the previous five years.

5.3 Training for all regularly assigned personnel and other special personnel

5.3.1 Before being assigned to duties related to the regular operations of the unit, all regularly assigned personnel and other special personnel without designated responsibility for the safety and survival of others (i.e. categories B, C and D) should receive training in personal survival, fire prevention and fire fighting, elementary first aid, personal safety and social responsibilities as set out in tables 5.3.1 to 5.3.5. Every effort should be made to provide such training prior to proceeding offshore.

5.3.2 The following training should be provided either ashore and/or on the unit, as appropriate, by qualified and experienced persons:

- .1 Familiarization and orientation on general arrangements of the MOU, central processes, operating systems, equipment and procedures, organization, safety philosophy and contingency plans, as well as preventive safety systems such as permit to work procedures, company health and medical services, and other matters related to safety.
- .2 Practical familiarity with emergency duties.

- .3 Understanding the critical need to bring any abnormal situation to the attention of a responsible person.
- .4 Knowledge of available evacuation methods and procedures.
- .5 Knowledge of alarm procedures for emergency situations.
- .6 Knowledge of safety procedures.
- .7 Hydrogen sulphide (H₂S) training, where applicable.
- .8 Operations and emergencies involving divers, where applicable.

5.3.3 A regular programme of drills and exercises should be established in order to provide and/or supplement training and provide for evaluation and assessment. Guidance regarding drills and exercises is provided in the appendix.

5.3.4 Individuals should be required to provide evidence of having achieved the required standard of competence to undertake the tasks, duties and responsibilities listed in column 1 of tables 5.3.1 to 5.3.5 within the previous five years through demonstration of competence or examination or continuous assessment as part of an approved training programme. Guidance regarding the use of drills for assessment of competence is provided in the appendix.

5.4 Specialized training

5.4.1 Specialized training, as appropriate to the individual duties assigned on the muster list, should be provided to personnel in categories C and D.

5.4.2 Appropriate to their assigned duties, personnel should receive instruction and training in the following:

- .1 for those in charge of survival craft, proficiency in survival craft and rescue boats other than fast rescue boats as specified in table A-VI/2-1 of the STCW Code;
- .2 for those assigned to operate fast rescue boats, proficiency in fast rescue boats as specified in table A-VI/2-2 of the STCW Code;
- .3 for those in charge of the unit, and those designated to control fire-fighting operations, proficiency in advanced fire-fighting as specified in table A-VI/3 of the STCW Code;
- .4 for those designated to provide immediate first aid, proficiency in medical first aid as specified in table A-VI/4-1 of the STCW Code; and
- .5 for a person designated to take charge of medical care on board the unit, proficiency in taking charge of medical care as specified in table A-VI/4-2 of the STCW Code.

5.4.3 Since specialized training may not be provided on the unit, care should be taken to ensure that newly assigned personnel with designated responsibility for the survival of others have sufficient experience, instruction, information or training on the equipment they are to use.

Table 5.3.1
Specification of minimum standard of proficiency in personal survival

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Emergency Signals	<p>Personnel should receive an initial orientation on the types and identification of emergency signals</p> <p>Personnel should be acquainted with the posting of the muster list as a source for defining emergency signals</p> <p>In the case of combined operations personnel should receive supplemental information on additional alarms and procedures</p>	Examination or assessment of evidence obtained satisfactory participation in drills and exercises	Actions taken during drills and in emergencies are appropriate to the emergency signal
Mustering of personnel	<p>During onboard orientation all personnel will be shown their primary safe muster areas</p> <p>Personnel should be acquainted with the posted muster list</p>	Examination or assessment of evidence obtained satisfactory participation in drills and exercises	Actions taken during drills and in emergencies are appropriate to the emergency signal
Use of lifejacket	Personnel will receive instruction on location, types, inspection and donning lifejackets	Don lifejacket	Lifejacket is donned correctly
Use of immersion suits	Personnel will be given instruction on location, type, inspection and donning of immersion suits, if required	Don immersion suit	Immersion suits are donned correctly
Lifeboat procedures	Personnel will be instructed on proper entry into lifeboats and the use of seat belts	Boards lifeboat during drills and straps in	Lifeboat is boarded correctly
Modes of evacuation	<p>Personnel will be instructed on the selection and use of available modes of evacuation. This may include:</p> <ul style="list-style-type: none"> -Helicopter -Catwalks or bridges -Standby vessel -Lifeboat -Liferaft -Ladders/escape devices -jumping from height (undesirable) 	Examination or assessment of evidence obtained satisfactory participation in drills and exercises	Demonstration of correct actions during drills and exercises
Boarding liferafts or buoyant apparatus	Personnel will be instructed on boarding a liferaft or buoyant apparatus both at deck level and from the sea	Examination or assessment of evidence obtained satisfactory participation in drills and exercises	Demonstration of correct actions during drills and exercises

Table 5.3.1 (continued)
Specification of minimum standard of proficiency in personal survival

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Water survival techniques	Personnel will be instructed on the following, as applicable: <ul style="list-style-type: none"> -- Use of lights and whistles and other signalling devices -- Proper body positions to conserve body heat and prevent hypothermia -- How to right an inverted liferaft -- Boarding a rescue craft from the water 	Examination or assessment of evidence obtained satisfactory participation in drills and exercises	Demonstration of correct actions during drills and exercises
Deployment of life rings and associated equipment	Personnel will be instructed in the procedures for deploying life rings and associated equipment Personnel will be instructed in the procedures for raising the alarm	Examination or assessment of evidence obtained satisfactory participation in drills and exercises	Demonstration of correct actions during drills and exercises

Table 5.3.2
Specification of minimum standard of fire prevention and fire fighting

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Minimize the risk of fire and maintain a state of readiness to respond to emergency situations involving fire	<p>Personnel should receive instruction that would include, but not be limited to the following:</p> <ul style="list-style-type: none"> .1 elements of fire and explosion (the fire triangle) .2 types and sources of ignition .3 flammable materials, fire hazards and spread of fire .4 requirement for constant vigilance .5 classification of fire and applicable extinguishing agents <p>Personnel should receive an initial orientation and familiarization instruction that would include, but not be limited to the following:</p> <ul style="list-style-type: none"> .1 onboard fire-fighting organization and muster list .2 location of fire-fighting equipment and emergency escape routes .3 onboard fire and smoke detection and automatic alarm systems .4 actions to be taken on discovery of smoke or fire .5 in the case of combined operations, supplemental instruction on additional alarms and procedures <p>Personnel should receive instruction on actions to be taken, given the individual's status onboard</p>	Examination or assessment of evidence obtained satisfactory participation in drills and exercises	Initial actions during drills or in response to emergencies conform to established procedures
Fight and extinguish fires	<p>Personnel should receive familiarization instruction that includes the following:</p> <ul style="list-style-type: none"> .1 selection and use of fire-fighting equipment and its location on-board .2 selection and use of personal protective equipment .3 fire-fighting and containment methods .4 fire-fighting agents 	Examination or assessment of evidence obtained satisfactory participation in drills and exercises	Actions during drills or in response to emergencies conform to established procedures

Table 5.3.3
Specification of minimum standard of proficiency in elementary first aid

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Take appropriate action upon encountering an accident or other medical emergency	Assessment of needs of casualties and threats to own safety	Assessment of evidence obtained from approved instruction or during attendance at an approved course	The manner and timing of raising the alarm is appropriate to the circumstances of the accident or medical emergency
	Appreciation of body structure and functions		
	<p>Understanding of immediate measures to be taken in case of emergency, including the ability to:</p> <ul style="list-style-type: none"> .1 position casualty .2 apply resuscitation techniques .3 control bleeding .4 apply appropriate measures of basic shock management .5 apply appropriate measures in event of burns and scalds, including accidents caused by electric current .6 rescue and transport a casualty .7 improvise bandages and use materials in emergency kit 		<p>Takes prompt action to evaluate the nature and extent of injuries and to prioritize treatment. Applies appropriate first aid measures to identified injuries in accordance with training provided</p> <p>Risk of further harm to self and casualty is minimized at all times</p>

Table 5.3.4
Specification of minimum standard of competence in personal safety

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Comply with emergency procedures	<p>Types of emergency which may occur, such as collision, fire, foundering</p> <p>General knowledge of contingency plans for response to emergencies and individual responsibility thereunder</p> <p>Emergency signals; muster list; muster stations; and correct use of personal safety equipment</p> <p>Action to take on discovering potential emergency including: fire, collision, foundering and ingress of water</p> <p>Action to take on hearing emergency alarm signals</p> <p>Knowledge of escape routes and internal communication and alarm systems</p>	Examination or assessment of evidence obtained satisfactory participation in drills and exercises	Action during drills or in response to emergencies conform to established procedures.
Prevention of pollution	Personnel will be instructed in: Potentially harmful effects of pollution; and steps to identify and prevent pollution	Examination or assessment of evidence obtained satisfactory participation in drills and exercises	Follows established pollution prevention procedures.
Observe safe working practices	<p>Importance of adhering to safe working practices at all times</p> <p>Safety and protective devices available to protect against potential hazards</p> <p>Precautions to be taken prior to entering enclosed spaces</p>	Examination or assessment of evidence obtained satisfactory participation in safety meetings	Safe working practices are observed and appropriate safety and protective equipment is correctly used at all times
Understand orders and instructions and be understood in relation to assigned duties	<p>Ability to understand orders and instructions and to communicate with others in relation to assigned duties</p> <p>Personnel will be instructed in the chain of command and in the importance of following the orders and instructions of those appointed over them</p>	Follows orders and instructions	Follows orders and instructions given

Table 5.3.5
Specification of minimum standard of competence in social responsibilities

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Contribute to effective human relationships on board MOU	<p>Personnel should receive familiarization instruction that would include, but not be limited to the following:</p> <ul style="list-style-type: none"> .1 Importance of maintaining good human and working relationships .2 Special emphasis shall be given to the following: <ul style="list-style-type: none"> .1 Social responsibilities, individual rights and responsibilities and practice of respect for co-workers: <ul style="list-style-type: none"> .1 no ethnic, racial, religious or sexual jokes or harassment .2 no horseplay or practical jokes .3 no profanity .4 control noise levels .5 dress appropriately .6 attend to personal hygiene .7 maintain neatness in living and working spaces .8 respect for privacy of others .9 respect for property of others .10 compliance with company policies regarding prohibited items .2 Dangers of drug and alcohol abuse: <ul style="list-style-type: none"> .1 company policy .2 operator policy (if different) .3 legal sanctions .3 Factors affecting human relationships in the offshore environment <ul style="list-style-type: none"> .1 harsh weather and working environments .2 physically demanding .3 long hours and isolated from shore .4 be prepared for unexpected extended stays .5 prohibited items 	<p>Documentation from orientations given to personnel should reflect this topic is adequately covered</p> <p>This can be demonstrated by video, computer base training, training syllabus or personnel getting this information verbally through lecture</p> <p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 instruction or training given prior to going offshore, .2 instruction or training given onboard the installation, or .3 direct observation of actions or conduct during training or instruction, while en route to or while onboard the unit 	Demonstration of correct knowledge

6 SPECIALIZED TRAINING AND QUALIFICATIONS OF KEY PERSONNEL

6.1 General

Every unit should have sufficient key persons on board possessing the knowledge, qualifications, skills and experience necessary to ensure the safe operation of the unit. It is recognized that the nature of MOUs and their operations necessitate the consideration of specialized training and qualifications. The Administration should determine the adequacy of the knowledge, qualifications, skills and experience of the personnel assigned the responsibility for essential safety and pollution prevention functions on the basis of the design, type, size, and operating parameters of each MOU. Administrations are invited to consider the essential functions listed below in determining the necessary knowledge, qualifications, skills and experience for key personnel.

6.2 Offshore installation manager

6.2.1 The essential safety and pollution prevention functions for which the OIM is responsible and the related knowledge, competencies and qualifications required, will depend on the type of unit and its mode of operation.

- .1 The person in charge should be well acquainted with the characteristics, capabilities and limitations of the unit and should have a full knowledge of the organization and actions to take in an emergency and the need to conduct and keep records of emergency drills and training.
- .2 The person in charge, or persons delegated by him should possess the capability to maintain and operate all fire-fighting equipment and life-saving appliances on board the unit and be able to train others in these activities.

6.2.2 Subject to the more precise indications given in the table 6.1, which relates to the training, knowledge, skill and competency requirements to particular types of MOUs it is considered necessary for the proper discharge of the essential safety and pollution prevention functions assigned to the OIM for the OIM to have knowledge, experience and have demonstrated competence in each of the following matters:

- .1 stability and construction:
 - .1 the general principles of construction;
 - .2 the static and dynamic stability of floating MOUs; theory and factors affecting trim and stability; measures to preserve safe trim and stability, including sufficient knowledge of stability calculations and the use of stability booklets; also the relationship with the regulatory requirements in respect of the stability curves for the operating and survival conditions taking into account the effect of environmental conditions prevailing;
 - .3 the effect on the trim and stability of a floating MOU in the event of damage to, and consequence flooding of any compartment; counter-measures to be taken. Knowledge of the principle and importance of maintaining the watertight integrity of the MOU; procedures for maintaining watertight integrity;
 - .4 loading supplies and ballasting in order to keep the unit's stresses within acceptable limits;

- .5 principal structural members and required periodical inspections. Basic knowledge of the effects of welding. Effects on corrosion of the structure;
- .6 the effect of the mooring system on stability; and
- .7 preloading and leg reaction stresses on self-elevating units;
- .2 station-keeping, mooring and dynamic positioning:
 - .1 sea-bed composition and characteristics;
 - .2 behaviour of mooring systems and force distribution, including the effect of environmental conditions;
 - .3 consequences of failure of the mooring system;
 - .4 anchor placement and recovery, and working with anchor handling vessels; and
 - .5 the principles of the dynamic positioning system, including capabilities and limitations of thrusters, power systems and maximum allowable position offsets;
- .3 transit operations:
 - .1 the 1972 Collision Regulations, as amended;
 - .2 navigation and electronic navigational aids appropriate to the type of unit; and
 - .3 towing procedures, including recovery of tow;
- .4 emergency procedures and safety equipment:
 - .1 life-saving and fire-fighting procedures, including drills;
 - .2 maintenance and inspection of life-saving and fire-fighting appliances in accordance with the regulatory requirements;
 - .3 communication procedures in emergencies;
 - .4 precautions to be taken before the onset of heavy weather; and
 - .5 evacuation procedures;
- .5 personnel transfers:
 - .1 precautions to be taken during transfer of personnel;
 - .2 use of the personnel basket;
 - .3 helicopter transfers; and
 - .4 vessel transfers;

- .6 handling and stowage of supplies, including dangerous goods:
 - .1 safe handling, stowage and care of equipment, supplies and dangerous goods;
 - .2 cranes and lifting equipment and inspections; and
 - .3 procedures for loading and discharge of helicopters and supply vessels;
- .7 pollution prevention and control:
 - .1 pollution prevention systems and equipment; and
 - .2 pollution control procedures;
- .8 meteorology:
 - .1 the characteristics of various weather systems;
 - .2 ability to apply available meteorological information to ensure safety of the MOU and, upon request, supply other vessels or aircraft with information;
 - .3 sources of meteorological information; and
 - .4 the effects of weather on the environmental limits of the MOU;
- .9 safe working practices:
 - .1 occupational safety, health and hygiene;
 - .2 hazardous areas;
 - .3 permits to work;
 - .4 work over water;
 - .5 work in enclosed spaces;
 - .6 personnel training;
 - .7 understanding of organization and communication; and
 - .8 understanding and inspection of safety equipment;
- .10 regulatory and certification requirements, including an appreciation of international and national regulations and recommendations affecting operations; and
- .11 industrial operations as they relate to maritime safety, including appreciation of the interrelationship between marine operations and specific industrial activities including, where appropriate, the following:

- .1 drilling and maintenance, where appropriate, of wells;
- .2 construction and offshore maintenance and repair;
- .3 production;
- .4 accommodation support;
- .5 lifting operations;
- .6 pipe laying;
- .7 diving; and
- .8 fire-fighting support;

6.2.3 Methods for demonstrating competence and criteria for evaluating competence for OIMs are set forth in table 6.2.

6.3 Barge supervisor

6.3.1 Knowledge, experience and competence in each of the following matters is considered necessary for the proper discharge of the essential safety and pollution prevention functions assigned to the barge supervisor:

- .1 stability and construction:
 - .1 the stability concepts specified for the ballast control operator plus a period of service in that capacity;
- .2 construction:
 - .1 principles of construction, structural members, watertight integrity and damage control;
- .3 emergency duties:
 - .1 responsibilities set forth in the emergency plan or operating manual relating to the safety of the unit;
- .4 communications:
 - .1 communication procedures for normal operations and in an emergency;
- .5 safe working practices:
 - .1 occupational safety, health and hygiene;
 - .2 hazardous areas;
 - .3 permits to work;

- .4 work over water;
- .5 work in enclosed spaces;
- .6 personnel training; and
- .7 understanding and inspection of safety equipment;
- .6 regulatory requirements:
 - .1 international and national regulations and recommendations affecting operations;
- .7 emergency first aid:
 - .1 provision of first aid to a casualty pending transfer to a medical facility;
- .8 transit operations:
 - .1 the 1972 Collision Regulation, as amended;
 - .2 navigation and electronic navigational aids appropriate to the type of unit; and
 - .3 towing procedures, including recovery of tow;
- .9 seamanship
 - .1 heavy weather;
 - .2 store and bulk liquid transfer;
 - .3 manoeuvring and positioning;
 - .4 anchor handling; and
 - .5 dynamic positioning, if applicable;

6.3.2 Methods for demonstrating competence and criteria for evaluating competence for barge supervisors are set forth in table 6.3.

6.4 **Ballast control operator**

6.4.1 Knowledge, experience and competence in each of the following matters is considered necessary for the proper discharge of the essential safety and pollution prevention functions assigned to the ballast control operator on column-stabilized units:

- .1 basic stability:
 - .1 understanding of general terms, i.e., displacement, draught, trim, heel, freeboard, buoyancy, reserve buoyancy, etc;

- .2 understanding of centre of gravity, centre of buoyancy, position of metacentre, righting lever and its effect on transverse stability;
- .3 stable, unstable and neutral equilibrium;
- .4 theory of moments applied to stability including the effects of heavy lifts and movement of same;
- .5 effect of adding, removing, shifting weight. Calculation of vertical, transverse and longitudinal shift of centre of gravity;
- .6 understanding of the inclining experiment report and its use;
- .7 effect of free surface on stability and factors affecting same;
- .8 general understanding of change of trim, trimming moments, longitudinal metacentre and longitudinal stability;
- .9 use of hydrostatic curves, deadweight scale and hydrostatic tables;
- .10 use of cross curves to produce a curve of statical stability and information from curve;
- .11 dynamical stability; synchronous rolling and angle of loll; stability criteria for MOUs;
- .12 effect of mooring system on stability; and
- .13 daily loading calculations;
- .2 application of stability knowledge, where the following should include the relevant theory and calculations:
 - .1 deck loads and effect on stability; change in lightweight;
 - .2 examination of ballasting systems and procedures;
 - .3 response to systems failures including station-keeping systems, damage to structures and subsequent action;
 - .4 damage control procedure, watertight compartments counter-flooding, use of pumping systems and cross-connections;
 - .5 environmental conditions and their effect on stability;
 - .6 vessel and environmental limitations and criteria for changing to survival condition;
 - .7 zones of reduced stability, precautions to take, unsymmetrical ballasting/de-ballasting and importance of sequence with regard to stress;

- .8 theory of calculations carried out on daily loading sheet, variations in chain deployed and effect on vertical moment; and
- .9 emergency procedures;
- .3 supplementary training:
 - .1 having successfully completed the formal training, as indicated above, no individual should work in a ballast control room without the supervision of a competent person for a period of time to enable him to become fully conversant with the ballasting systems of that unit. Before being left in sole charge and being required to react alone in the event of an emergency, the individual should receive experience of simulated emergency situations.

6.4.2 Methods for demonstrating competence and criteria for evaluating competence for ballast control operators are set forth in table 6.4.

6.5 Maintenance supervisor

6.5.1 On self-propelled MOUs, the person assigned responsibility for the operation and maintenance of the main propulsion and auxiliary machinery should meet the appropriate knowledge requirements of chapter III of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended. (See section 4.1 on self-propelled MOUs).

6.5.2 On non-self propelled MOUs, the person assigned responsibility for the operation and maintenance of the power plant and auxiliary machinery should have knowledge, experience and competence in each of the following:

- .1 operation and maintenance of engines.
- .2 operation and maintenance of auxiliary machinery including pumping and piping systems, associated control systems and, if appropriate, jacking systems;
- .3 detection of machinery malfunction, location of faults to prevent or minimize damage;
- .4 maintenance and repair problems;
- .5 operation and maintenance of systems for fire prevention, detection and extinction;
- .6 safe working practices;
- .7 maintenance of survival craft and launching appliances; and
- .8 pollution prevention procedures.

6.5.3 Methods for demonstrating competence and criteria for evaluating competence for maintenance supervisors on non-self propelled MOUs are set forth in table 6.5.

Table 6.1
Knowledge and training requirements for different types of MOU

Knowledge/ experience listed in 6.2.2	Type of MOU						
	Drillship	Self-propelled		Non self-propelled		Bottom-bearing	
		Column- stabilized unit	Other	Column- stabilized unit	Other	Submersible	Self-elevated unit
.1.1	X	X	X	X	X	X	X
.1.2	X	X	X	X	³	²	²
.1.3	X	X	X	X	X	²	²
.1.4	X	X	X	X	X	X	X
.1.5	X	X	X	X	X	X	X
.1.6	X ¹	X ¹	X ¹		X	X	
.1.7							X
.2.1	X	X	X	X	X	X	X
.2.2	X ¹	X ¹	X ¹		X	X	
.2.3	X ¹	X ¹	X ¹		X	X	
.2.4	X	X	X	X	X	X	X
.2.5	X	X	X				
.3.1	X	X	X	X ³	³	^{2,3}	^{2,3}
.3.2	X	X	X	X ³	³	^{2,3}	^{2,3}
.3.3	X	X	X	X	X ³	²	²
.4 to .11	X	X	X	X	X	X	X

¹ Except for units in dynamic positioning mode.

² Bottom-bearing units whilst afloat.

³ Depends on unit type and circumstances of operation (to be determined by the Administration).

Table 6.2
Specification of minimum standard of competence for Offshore Installation Manager

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and ensure safe ballasting and deballasting operations and accounting of changes in deck loads	<p>Knowledge of and ability to apply relevant international and national standards concerning stability</p> <p>Use of loading stability information as may be contained in or derived from stability and trim diagrams, operation manual, and/or computer-based loading and stability programs</p>	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	<p>Ballasting and deballasting are planned and executed in accordance with established procedures</p> <p>Changes in deck loads are accounted for in accordance with established procedures</p>
Operational control of trim, stability and stress	<p>Understanding of fundamental principles of MOU construction, including principal structural members and required periodic inspections</p> <p>Basic knowledge of effects of welding, and effects of corrosion on the structure</p> <p>Understanding of fundamental principles and the theories and factors affecting trim and stability and measures necessary to preserve trim and stability (afloat mode)</p> <p>Stability criteria for MOUs (static and dynamic), environmental limits and criteria for survival conditions</p> <p>Understanding of inclining experiment, deadweight survey, and their use</p> <p>Use of daily loading calculations</p> <p>Knowledge of the effect :</p> <ol style="list-style-type: none"> .1 on trim and stability of MOU in event of damage to and consequent flooding of a compartment, and countermeasures to be taken (afloat mode) .2 of loading supplies and ballasting in order to keep the unit's stresses within acceptable limits .3 of mooring systems and mooring line failure .4 of pre-loading and leg stresses on self-elevating units .5 loss of buoyancy 	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	MOU structure, stability and stress conditions are maintained within safe limits at all times

Table 6.2 (continued)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Maintain safety and security of MOU personnel and the operational condition of life-saving, fire-fighting and other safety systems	<p>Knowledge of life-saving appliance regulations (International Convention for the Safety of Life at Sea) as applicable to MOUs</p> <p>Organization of fire and abandon ship drills</p> <p>Maintenance of operational condition of life-saving, fire-fighting and other safety systems</p> <p>Actions to be taken to protect and safeguard all persons on board in emergencies, including evacuation</p> <p>Actions to limit damage following a fire, explosion, collision, or grounding</p> <p>Precautions to be taken before onset of heavy weather</p>	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	<p>Procedures for monitoring fire-detection and safety systems ensure that all alarms are detected promptly and acted upon in accordance with established emergency procedures</p> <p>Life-saving appliances and fire-fighting equipment are maintained in accordance with prescribed standards</p>
Develop emergency and damage control plans and handle emergency situations	<p>Preparation of contingency plans for response to emergencies</p> <p>Ship construction, including damage control</p> <p>Methods and aids for fire prevention, detection and extinction</p> <p>Functions and use of life-saving appliances</p> <p>Evacuation from MOU</p> <p>Precautions to be taken before onset of heavy weather</p>	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	Emergency procedures are in accordance with the established plans for emergency situations
Respond to emergencies	<p>Knowledge of :</p> <ul style="list-style-type: none"> .1 emergency procedures .2 the effect of trim and stability of flooding due to damage, fire-fighting , loss of buoyancy or other reasons and countermeasures to be taken <p>Effectively communicate stability related information</p>	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	<p>Established procedures are followed during drills and emergencies</p> <p>Communications are clear and effective</p>

Table 6.2 (continued)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Maintain MOU safe for transit, station keeping, mooring and dynamic positioning conditions	Knowledge of: <ul style="list-style-type: none"> .1 The 1972 Collision Regulations, as amended .2 Navigation and electronic navigational aids appropriate to the type of MOU .3 Towing procedures, including recovery of tow .4 Sea bed composition and characteristics .5 Behaviour of mooring systems and force distributions, including the effect of environmental conditions .6 Consequences of mooring system failure .7 Anchor placement and recovery, and working with anchor handling vessels .8 Principles of dynamic positioning system, including capabilities and limitations of thrusters, power systems and maximum allowable position offsets (For Dynamic Position equipped vessels only)* 	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	Transit, station keeping, mooring and dynamic positioning operations are within safe limits at all times Communications are effective and comply with established procedures
Forecast weather and oceanographic conditions	Knowledge of : <ul style="list-style-type: none"> .1 Characteristics of weather systems .2 Ability to apply available meteorological information to ensure safety of MOU and , upon request, supply other vessels or aircraft with information .3 Sources of weather information .4 The effects of weather on the MOU environmental limits 	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	The likely weather conditions for a determined period are based on all available information Actions taken to maintain safety of navigation and operations minimize risk to safety of MOU
Plan and ensure safe transfer of personnel	Knowledge of : <ul style="list-style-type: none"> .1 Precautions to be taken during transfer of personnel .2 Use of the personnel basket .3 Helicopter transfers .4 Vessel transfers .5 Effect of environmental conditions on method of personnel transfer 	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	Personnel transfers are conducted safely

* Resolution MSC.38(63), annex 2.

Table 6.2 (continued)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and ensure safe loading, stowage, securing and handling of supplies, including dangerous goods	<p>Knowledge of :</p> <ul style="list-style-type: none"> .1 the effect on trim and stability of cargoes and cargo operations .2 safe handling, stowage and care of equipment, supplies and dangerous goods .3 crane and lifting equipment, and their inspections .4 procedures for loading and discharge of helicopters and supply vessels .5 precautions during loading, and unloading, and use of dangerous, hazardous, or harmful goods 	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	<p>The likely weather conditions for a determined period are based on all available information</p> <p>Stowage and securing of cargoes and supplies ensures that stability and stress conditions remain within safe limits, and are in accordance with established guidelines and legislative requirements</p> <p>Information on dangers, hazards and special requirements is recorded in a suitable format for easy reference in the event of an incident</p>
Prevention of pollution	<p>Methods and aid to prevent pollution of the environment</p> <p>Knowledge of :</p> <ul style="list-style-type: none"> .1 Pollution prevention systems and controls .2 Pollution control procedures, including the unit's MARPOL I/26 and article 3 of OPRC Convention Shipboard Oil Pollution Emergency Plan, MARPOL Annex V Waste Management Plan, and any plan dealing with dangerous/hazardous goods 	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	Operations are conducted without hazarding the environment through spills of oil or dangerous/hazardous goods, or garbage
Monitor and control Safe Work Practices	<p>Knowledge of safe working practices, such as:</p> <ul style="list-style-type: none"> .1 Occupational safety, health and hygiene .2 Hazardous areas .3 Permits to work .4 Work over water .5 Work in confined spaces <p>Knowledge of personnel training, organization and communication</p> <p>Understanding and inspection of safety equipment</p> <p>Identify, evaluate, control new hazards through engineering controls or safe working practices</p>	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	Operations minimize hazards to personnel

Table 6.2 (continued)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea and the protection of the marine environment	<p>Knowledge of international maritime law embodied in international agreements and conventions</p> <p>Regard shall be paid to the following subjects:</p> <ul style="list-style-type: none"> .1 certificates and other documents required to be carried on board MOUs by international conventions and/or agreements .2 responsibilities under the relevant requirements of the: <ul style="list-style-type: none"> - International Convention on Load Lines; - International Convention for the Safety of Life at Sea; - International Convention for the Prevention of Pollution from Ships; .3 maritime declarations of health and the requirement of the International Health Regulations .4 responsibilities under international instruments affecting the safety of the MOU, visitors, crew and cargo .5 methods and aids to prevent pollution of the marine environment by MOUs .6 national legislation for implementing international agreements and conventions 	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	<p>Procedures for monitoring operations and maintenance comply with legislative requirements</p> <p>Potential non-compliance is promptly and fully identified</p> <p>Planned renewal and extension of certificates ensures continued validity of surveyed items and equipment</p>
Monitor and control industrial operations impacting maritime safety	<p>Knowledge and appreciation of the interrelation-ship between marine operations and specific industrial activities including, where appropriate, the following:</p> <ul style="list-style-type: none"> .1 Drilling and maintenance, where appropriate, of wells .2 Construction and offshore maintenance and repair .3 Production .4 Accommodation support .5 Lifting operations .6. Pipe laying .7 Diving .8 Fire-fighting support 	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	Industrial operations are carried out safely

Table 6.3
Specification of minimum standard of competence for Barge Supervisor

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and ensure safe ballasting and deballasting operations and accounting of changes in deck loads	<p>Knowledge of and ability to apply relevant international and national standards concerning stability</p> <p>Use of loading stability information as may be contained in or derived from stability and trim diagrams, operation manual, and/or computer-based loading and stability programs</p>	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	<p>Ballasting and deballasting are planned and executed in accordance with established procedures</p> <p>Changes in deck loads are accounted for in accordance with established procedures</p>
Operational control of trim, stability and stress	<p>Understanding of fundamental principles of MOU construction, including principal structural members and required periodic inspections, watertight integrity and damage control</p> <p>Basic knowledge of effects of welding, and effects of corrosion on the structure</p> <p>Understanding of fundamental principles and the theories and factors affecting trim and stability and measures necessary to preserve trim and stability</p> <p>Stability criteria for MOU (static and dynamic), environmental limits and criteria for survival conditions</p> <p>Understanding of inclining experiment, deadweight survey, and their use</p> <p>Use of daily loading calculations</p> <p>Knowledge of the effect of mooring systems and mooring line failure</p>	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	MOU structure, stability and stress conditions are maintained within safe limits at all times

Table 6.3 (continued)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Respond to emergencies	<p>Knowledge of :</p> <ul style="list-style-type: none"> .1 emergency procedures .2 the effect of trim and stability of flooding due to damage, fire-fighting, loss of buoyancy or other reasons and countermeasures to be taken <p>Effectively communicate stability related and damage control information</p>	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	<p>Established procedures are followed during drills and emergencies</p> <p>Communications are clear and effective</p>
Seamanship	<p>Knowledge of :</p> <ul style="list-style-type: none"> .1 The 1972 Collision Regulations, as amended .2 Navigation and electronic navigational aids appropriate to the type of MOU .3 Towing procedures, including recovery of tow <p>Proficiency in the following:</p> <ul style="list-style-type: none"> .1 Heavy weather .2 Store and bulk liquid transfer .3 Manoeuvring and positioning .4 Anchor handling .5 Dynamic positioning, if applicable <p>Effectively communicate navigational and cargo handling information</p>	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	<p>Transit, station keeping, mooring and dynamic positioning operations are within safe limits at all times</p> <p>Communications are effective and comply with established procedures</p>
Plan and ensure safe loading, stowage, securing and handling of supplies, including dangerous goods	<p>Knowledge of:</p> <ul style="list-style-type: none"> .1 the effect on trim and stability of cargoes and cargo operations .2 safe handling, stowage and care of equipment, supplies and dangerous goods .3 crane and lifting equipment, and their inspections .4 procedures for loading and discharge of helicopters and supply vessels .5 precautions during loading, and unloading, and use of dangerous, hazardous, or harmful goods 	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	<p>The likely weather conditions for a determined period are based on all available information</p> <p>Stowage and securing of cargoes and supplies ensures that stability and stress conditions remain within safe limits, and are in accordance with established guidelines and legislative requirements</p> <p>Information on dangers, hazards and special requirements is recorded in a suitable format for easy reference in the event of an incident</p>

Table 6.3 (continued)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Monitor and control Safe Work Practices	<p>Knowledge of safe working practices, such as:</p> <ul style="list-style-type: none"> .1 Occupational safety, health and hygiene .2 Hazardous areas .3 Permits to work .4 Work over water .5 Work in confined spaces <p>Knowledge of personnel training, organization and communication</p> <p>Understanding and inspection of safety equipment</p>	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	Operations minimize hazards to personnel
Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea and the protection of the marine environment	<p>Knowledge of international maritime law embodied in international agreements and conventions</p> <p>Regard shall be paid to the following subjects:</p> <ul style="list-style-type: none"> .1 certificates and other documents required to be carried on board MOUs by international conventions and/or agreements .2 responsibilities under the relevant requirements of the: <ul style="list-style-type: none"> - International Convention on Load Lines; - International Convention for the Safety of Life at Sea; - International Convention for the Prevention of Pollution from Ships; .3 responsibilities under international instruments affecting the safety of the MOU, visitors, crew and cargo .4 methods and aids to prevent pollution of the marine environment by MOUs .5 national legislation for implementing international agreements and conventions 	Examination and assessment of evidence obtained from one or more of the following: In-service experience, direct observation, formal instruction, simulator training, or examination	<p>Procedures for monitoring operations and maintenance comply with legislative requirements</p> <p>Potential non-compliance is promptly and fully identified</p> <p>Planned renewal and extension of certificates ensures continued validity of surveyed items and equipment</p>
Provide first aid to a casualty prior to transfer to medical facility	See table A-VI/4-1 of STCW Code	See table A-VI/4-1 of STCW Code	See table A-VI/4-1 of STCW Code

Table 6.4
Specification of minimum standard of competence for ballast control operators

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and ensure safe ballasting and deballasting operations and accounting of changes in deck loads	<p>Knowledge of and ability to apply relevant international and national standards concerning stability</p> <p>Use of loading stability information as may be contained in or derived from stability and trim diagrams, operations manuals, and/or computer-based loading and stability programs</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>In-service experience, direct observation, formal instruction, simulator training, or examination</p>	<p>Ballasting and deballasting operations are planned and executed in accordance with established procedures</p> <p>Changes in deck loads are accounted for in accordance with established procedures</p>
Operational control trim, stability and stress	<p>Understanding of fundamental principles of ship construction and the theories and factors affecting trim and stability and the measures necessary to preserve trim and stability</p> <p>Stability criteria for MOUs, environmental limits and criteria for survival conditions</p> <p>Understanding the inclining experiment report and its use</p> <p>Use of daily loading calculations</p> <p>Dynamical stability</p> <p>Effect of mooring systems and mooring line failure</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>In-service experience, direct observation, formal instruction, simulator training, or examination</p>	<p>Stability and stress conditions are maintained within established limits at all times</p>
Respond to emergencies	<p>Knowledge of emergency procedures</p> <p>Knowledge of the effect on trim and stability of flooding due to damage, fire-fighting, loss of buoyancy or other reasons and countermeasures to be taken</p> <p>Effectively communicate stability-related information</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>In-service experience, direct observation during drills and exercises, formal instruction, simulator training, or examination</p>	<p>Established procedures are followed during drills and emergencies</p> <p>Communications are clear and effective</p>
Prevention of pollution	<p>Methods and aids to prevent pollution of the environment</p> <p>Knowledge of relevant international and national requirements, regard should be paid especially to:</p> <ol style="list-style-type: none"> 1. certificates and other documents required by international convention or national law, how they may be obtained, and their period of validity 2. responsibilities under relevant international agreements 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>In-service experience, formal instruction, or examination</p>	<p>Follows pollution prevention procedures established by international convention, national requirements and company policy</p>

Table 6.5**Specification of minimum standard of competence for maintenance supervisors on non self-propelled units**

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Use appropriate tools for fabrication and repair operations typically performed on MOU's	Characteristics and limitations of materials used in construction and repair. Characteristics and limitations of processes used for fabrication and repair Properties and parameters considered in the fabrication and repair of systems and components. Application of safe working practices in the workshop environment	Examination and assessment of evidence obtained from one or more of the following: Workshop skills training, In-service experience, or examination	Identification of important parameters for fabrication of typical MOU related components is appropriate Selection of material is appropriate Fabrication is to designated tolerances Use of equipment and machine tools is appropriate and safe
Use hand tools and measuring equipment for dismantling, maintenance, repair and re-assembly of on-board plant and equipment	Design characteristics and selection of materials in construction of equipment. Interpretation of machinery drawings and handtools Operational characteristics of equipment and systems	Examination and assessment of evidence obtained from one or more of the following: Workshop skills training, In-service experience, or examination	Safety procedures followed are appropriate Selection of tools and spare gear is appropriate Dismantling, inspecting, repairing and reassembling equipment is in accordance with manuals and good practice Re-commissioning and performance testing in accordance with manuals and good practice
Use hand tools, electrical and electronic measuring and test equipment for fault finding, maintenance and repair operations	Safety requirements for working on electrical systems. Construction and operational characteristics of on-board AC and DC electrical systems and equipment Construction and operation of electrical test and measuring equipment	Examination and assessment of evidence obtained from one or more of the following: Workshop skills training, In-service experience, or examination	Implementation of safety procedures is satisfactory Selection and use of test equipment is appropriate and interpretation of results is accurate Selection of procedures for the conduct of repair and maintenance is in accordance with manuals and good practice Commissioning and performance testing of equipment and systems brought back into service after repair is in accordance with manuals and good practice

Table 6.5 (continued)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Operate alternators, generators and control systems	Generating plant Appropriate basic electrical knowledge and skills Preparing, starting, coupling and charging over alternators or generators Location of common faults and action to prevent damage Control systems Location of common faults and action to prevent damage	Examination and assessment of evidence obtained from one or more of the following: In service experience, simulator training, laboratory equipment training, or examination	Operations are planned and carried out in accordance with established rules and procedures to ensure safety of operations
Maintain engineering systems, including control systems	Appropriate basic mechanical knowledge and skills Safe isolation of electrical and other types of plant and equipment required before personnel are permitted to work on such plant or equipment Undertake maintenance and repair to plant and equipment	Examination and assessment of evidence obtained from one or more of the following: In service experience, simulator training, laboratory equipment training, or examination	Isolation, dismantling and reassembly of plant and equipment is in accordance with accepted practices and procedures. Action taken leads to the restoration of plant by the method most suitable and appropriate to the prevailing circumstances and conditions
Operate, monitor and evaluate engine and machinery performance and capacity	Operation and maintenance of: Engines Auxiliary machinery including pumping and piping systems, associated control systems and, if appropriate, jacking systems	Examination and assessment of evidence obtained from one or more of the following: In-service experience, formal instruction, simulator training, or examination	Action during drills or in response to emergencies conform to established procedures
Detect and identify the cause of machinery malfunctions and correct faults	Detection of machinery malfunction and location of faults to prevent or minimize damage	Examination and assessment of evidence obtained from one or more of the following: In-service experience, formal instruction, simulator training, or examination	Methods of comparing actual operating conditions are in accordance with recommended practices and procedures Actions and decisions are in accordance with recommended operating specifications and limitations

Table 6.5 (continued)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Organize safe maintenance and repair procedures	Marine engineering practice Organizing and carrying out safe maintenance and repair procedures	Examination and assessment of evidence obtained from one or more of the following: In-service experience, formal instruction, simulator training, or examination	Maintenance activities are correctly planned and carried out in accordance with technical, legislative, safety and procedural specifications Appropriate plans, specifications materials and equipment are available and used for maintenance and repair Actions taken lead to the restoration of the plant by the most suitable method
Operate and maintain survival craft and launching systems and systems for fire prevention, detection and extinguishment	Maintenance of operational condition of survival craft and launching systems and systems for fire prevention, detection and extinguishment Actions taken to protect the unit and its personnel and limit damage following fire, explosion, collision or grounding	Examination and assessment of evidence obtained from one or more of the following: In-service experience, formal instruction, simulator training, or examination	Procedures for maintaining equipment ensure that equipment remains operational Actions taken in response to drills or emergencies follow established procedures

Table 6.5 (continued)

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Prevention of pollution	<p>Methods and aids to prevent pollution of the environment</p> <p>Knowledge of relevant international and national requirements, regard should be paid especially to:</p> <ol style="list-style-type: none"> 1. certificates and other documents required by international convention or national law, how they may be obtained, and their period of validity 2. responsibilities under relevant international agreements 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>In-service experience, formal instruction, simulator training, or examination</p>	<p>Follows pollution prevention procedures established by international convention, national requirements and company policy</p>
Ensure safe working practices	Safe working practices	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>In-service experience, formal instruction, simulator training, or examination</p>	<p>Working practices are in accordance with legislative requirements, codes of practice, environmental concerns, and company policies</p> <p>Safe working practices are observed and appropriate safety and protective equipment is correctly used at all times</p>

APPENDIX

GUIDANCE ON DRILLS AND EXERCISES

1 INTRODUCTION

1.1 This guidance is offered to aid in the development of an effective programme of drills and exercises for training and assessment of basic offshore emergency response. Drills and Exercises are a primary means of testing and maintaining the emergency response arrangements of a mobile offshore unit (MOU). They also are an integral part of the system of providing basic safety training and other emergency response training to individuals and evaluating individual skills and knowledge in these areas.

1.2 Definitions

1.2.1 **Exercise** means a test of the emergency response arrangements under as near realistic conditions as possible on the MOU and involves all unit personnel.

1.2.2 **Drill** means a form of exercise which provides the opportunity to practice elements of the system. Drills are carried out under realistic conditions while allowing for instruction and training, e.g. breathing apparatus drills for the fire team, casualty handling for first-aid and stretcher teams, etc.

1.3 Drill and exercise programme

1.3.1 The drill and exercise programme should be an integral part of the unit's training programme. The design of a programme of drills and exercises can be considered in four levels.

Offshore/onshore exercises

1.3.2 As many MOUs rely on shore-based support during response to major emergencies these exercises are intended to test and develop communications and relationships between the unit and onshore emergency support teams. To maximize the benefits of such exercises considerable co-ordination and planning may be required.

1.3.3 Arrangements should be made for independent observers, i.e., persons not involved in the actual exercise, to monitor both the offshore and onshore elements of the exercise and provide objective assessment and feedback.

1.3.4 Offshore/onshore exercises should be held at such intervals as allow each OIM to participate in at least one such exercise every 3 years, i.e., the nominal frequency should be approximately 18 months interval.

Offshore exercises

1.3.5 These exercises are intended to test and develop communications and relationships on board the unit and for the unit's emergency support teams. They are also used to test and develop integrated emergency response arrangements for units engaged in combined operations.

1.3.6 When possible, arrangements should be made for independent observers, i.e., persons not involved in the actual exercise, to monitor the exercise and provide objective assessment and feedback.

Routine drills

1.3.7 A programme of routine drills is established to provide systematic practical training and experience in the elements of basic offshore emergency response. The programme should ensure that all the elements of required individual and team competence in basic offshore emergency preparedness training are regularly tested. Various elements can be tested during a drill.

1.3.8 Consideration should also be given to carrying out drills in order to provide training and heighten awareness prior to conducting non-routine or hazardous operations.

Assessment drills

1.3.9 A programme of assessment drills should be specifically established to provide for periodic and systematic demonstration of individual competence in the elements of basic safety training. Other elements of emergency response, as may be determined to be appropriate for the unit, may also be assessed.

1.4 Evaluation and assessment

1.4.1 Assessors should be assigned for each exercise and drill. If practicable, assessors should not be active participants in the drill or exercise in order that they can dedicate their time and attention to training and assessment

1.4.2 All assessors should:

- .1 have an appropriate level of knowledge and understanding of the competence to be assessed;
- .2 be qualified in the tasks for which the assessment is being made; and
- .3 have received appropriate guidance in assessment methods and practice and have gained practical assessment experience.

1.4.3 Arrangements should be made periodically which permit the OIM, or other supervisors, to be released from their normal emergency response role to monitor the key aspects of the units drills.

1.4.4 As a matter of routine, personnel with key emergency response roles should monitor the performance in their areas and ensure appropriate action is taken to resolve any problems which are identified.

1.4.5 Drills should be structured so as to also demonstrate that associated emergency appliances and equipment are complete, in good working order and ready for immediate use.

1.4.6 A debriefing should be held after each drill exercise for training and to assist in the overall assessment and evaluation.

1.5 Records and follow up

1.5.1 Records, similar to the samples provided in attachment 1, should be maintained describing the scope of all drills which are conducted. More detailed reports may be appropriate for exercises.

1.5.2 Records should include any recommendations for improvements or modification which were identified with respect to emergency procedures, drill or exercise procedures, or equipment.

1.5.3 A record, similar to the sample provided in attachment 2, should be maintained of all assessment drills. When assessment drills are completed, suitable endorsements should also be made in individuals' training record books, training passports or other appropriate records.

1.5.4 A system should be established to ensure all recommendations are properly considered and appropriate action taken.

1.5 Special precautions

1.5.1 For units that may be working with open wells, the status of the well and the safety of well operations should be given special consideration.

1.5.2 For units involved in combined operations, the effect of the drill or exercise on the other unit or facility must be considered. Nevertheless, the development of drill and exercise scenarios addressing combined operations is encouraged.

2 OFFSHORE EXERCISES

2.1 Exercise scenarios

Offshore exercises should be varied and challenging. Scenario details should be adequate to allow for a realistic exercise but not so prescriptive as to prevent variations and an injection of the unexpected into the exercise. An example of an exercise scenario is contained in attachment 3.

2.2 Planning of exercises

2.2.1 Exercises should be carried out at a time which minimizes disruption to operations without detriment to the exercise objectives.

2.2.2 There should be elements of surprise in the timing of the exercise. However, this needs to be balanced with safety and other operational requirements.

2.2.3 Where possible, offshore exercises should be held when there are onshore management or other suitably qualified personnel available to assist in monitoring the exercise and randomly and unexpectedly input realistic variations to the scenarios. If there are no such persons with the necessary knowledge or experience of emergency exercise available then the OIM, or other supervisors, should fulfill this function.

2.2.4 Offshore exercises should be held at approximately 3 month intervals.

3 ROUTINE DRILLS

3.1 Drill Scenarios

3.1.1 Routine drills are a means of practising emergency response, building teamwork, and providing training basic safety and other elements of emergency response.

3.1.2 It is essential that routine drills do not become repetitive. Drills should be developed from a selection of the elements relevant to current or planned operations so as to provide variety and a challenge to the personnel of the unit.

3.1.3 All the required elements of basic safety training should be covered by the drill programme within any 3 month period. Additional emergency response elements may be added to address unit-specific concerns such as combined operations (assistance to others), helideck fire fighting, etc. Possible elements for developing routine drills are provided in attachment 4.

3.1.4 Unless a drill is designed to meet a specific training purpose, e.g. breathing apparatus procedures for fire team members, then each drill should include the mustering of all personnel to both their normal and alternative muster points.

3.1.5 For units operating (or scheduled to operate) in areas where hydrogen sulphide (H₂S) is a concern, the H₂S mustering procedures should be included.

3.2 Frequency

3.2.1 One abandon unit and one fire drill should be held every week. Drills should be so arranged that all regularly assigned personnel participate in one abandon unit and one fire drill at least once a month.. A drill should take place within 24 hours after a personnel changed if more than 25% of the personnel have not participated in abandon unit and fire drills on board that particular unit in the previous month.

3.2.2 Other drills should be held as frequently as required to ensure the required levels of competence in basic safety and emergency response preparedness are achieved.

4 ASSESSMENT DRILLS

4.1 Assessment drills are designed for the specific purpose of providing a means for an individual to demonstrate that he or she has achieved the required standard of competence in basic safety (i.e., personal survival, fire fighting, elementary first aid, and personal safety) and other emergency response elements determined appropriate for the unit.

4.2 Personnel not regularly assigned to a MOU may experience difficulty in documenting that they have achieved the required standard of competence in basic safety under realistic conditions (i.e., they may have only been assessed during shore-based training). Accordingly, installation managers should be encouraged to include such personnel in assessment drills when they are conducted.

4.3 Because of the importance attached to proficiency in basic safety, individuals failing to demonstrate the required level of proficiency should be immediately provided with remedial training.

4.4 Guidance on assessment drills is provided in attachment 5.

ATTACHMENT 1**SAMPLE DRILL / EXERCISE RECORD****Unit:****Date:****Brief description of drill / exercise scenario:** (e.g. Fire in pantry, muster, etc.)**Emergency response elements exercised:****1 Emergency control centre**

- ! Command
- ! Communications
- ! Information availability
- ! Establishing alternate Location

2 Mustering

- ! Accounting for personnel
- ! Moving and controlling personnel
- ! Communications

3 Evacuation/escape

- ! Survival craft boarding
- ! Survival craft launching
- ! Escape systems
- ! Protective equipment
- ! Communications

4 Fire teams

- ! Leadership
- ! Communications
- ! Fire containment and extinguishment
- ! Dewatering

- ! Breathing apparatus procedures

- ! Search and rescue
- ! Casualty handling

5 First aid

- ! Casualty management
- ! Casualty handling
- ! Casualty evacuation

6 Well control (if applicable)

- ! Trip drills
- ! Kick drills
- ! Well control
- ! Well kill
- ! Shallow gas

7 Helideck (if installed)

- ! Leadership
- ! Fire monitor and rescue equipment
- ! Casualty handling

8 Collision/flooding

- ! Manual operation of valves
- ! Preserving watertight integrity
- ! Emergency dewatering

9 Man overboard

- ! Rescue boat launching
- ! Standby vessel communication

10 Severe storm

- ! Securing equipment on deck
- ! Preserving watertight integrity

11 Hydrogen sulphide**12 Diving operations (if applicable)**

- ! Onboard emergency while divers submerged
- ! Emergencies involving divers

13 Assistance to others**Comments on performance:****Recommendations for improvements:****Signed:** _____**Position:** _____**Date:** _____

ATTACHMENT 2

SAMPLE OFFSHORE EMERGENCY RESPONSE EXERCISE SCENARIO

Objective:

To demonstrate the unit's ability to respond to a major incident which escalates to the point that evacuation is appropriate.

Outline scenario:

- ! Exercise commences with a manually initiated alarm and a report of fire, collision, loss of well control or other escalating event.
- ! Emergency response procedures are put into action.
- ! Person or persons are identified as missing.
- ! The event escalates until the response teams conclude containment is no longer possible.
- ! Abandon unit procedures are initiated
- ! Personnel proceed to controlled evacuation or escape points, as directed.

Expected response:

- ! Personnel make job sites safe and proceed to assigned muster areas.
- ! On units engaged in well operations, the drill crew closes the well and makes it safe.
- ! The OIM proceeds to designated emergency control point and takes control.
- ! Standby vessel, emergency response organizations, and onshore base(s) are notified of exercise, as appropriate.
- ! Mustering identify missing person or persons and where last seen.
- ! Fire teams, appropriately clothed, run hoses and commence search of area.
- ! Where safe and appropriate to do so, fixed fire fighting systems are activated and performance verified.
- ! Casualties are located and are moved to a safe area by first aid responders and/or the stretcher bearers.
- ! Fire escalates and personnel ordered to preferred evacuation points.
- ! Fire teams are withdrawn and abandon unit alarm is initiated.

Possible scenario variables: (Not all will be used in a single exercise)

- ! Communications failure between fire team leader, muster checkers and/or OIM.
- ! OIM incapacitated at any stage during the exercise.
- ! Other key personnel incapacitated.
- ! Routes to muster areas and/or evacuation points are blocked.
- ! Critical equipment fails, e.g., loss of a fire pump.
- ! Search teams are trapped.
- ! Casualties in other areas require immediate medical attention.

ATTACHMENT 3**POSSIBLE ELEMENTS OF EMERGENCY RESPONSE
FOR DEVELOPING ROUTINE DRILLS****1 Emergency control centre**

- ! Command
- ! Communications
- ! Information availability
- ! Establishing alternate location

2 Mustering

- ! Accounting for personnel
- ! Moving and controlling personnel
- ! Communications

3 Evacuation/Escape

- ! Survival craft boarding
- ! Survival craft launching
- ! Escape systems
- ! Protective equipment
- ! Communications

4 Fire teams

- ! Leadership
- ! Communications
- ! Fire containment and extinguishment
- ! Dewatering
- ! Breathing apparatus procedures
- ! Search and rescue
- ! Casualty handling

5 First aid

- ! Casualty management
- ! Casualty handling
- ! Casualty evacuation

6 Well control (where applicable)

- ! Trip drills
- ! Kick drills
- ! Well control
- ! Well kill
- ! Shallow gas

7 Helideck (if installed)

- ! Leadership
- ! Fire monitor and rescue equipment
- ! Casualty handling

8 Collision/Flooding

- ! Manual operation of valves
- ! Preserving watertight integrity
- ! Emergency dewatering

9 Man overboard

- ! Rescue boat launching
- ! Standby vessel communication

10 Severe storm

- ! Securing equipment on deck
- ! Preserving watertight integrity

11 Hydrogen sulphide**12 Diving operations (if applicable)**

- ! Onboard emergency while divers are underwater
- ! Emergencies involving divers

**13 Assistance to others (particularly for
combined operations)**

ATTACHMENT 4

ASSESSMENT DRILL RECORD SHEET
(A separate record sheet should be completed for each drill)

Unit name:

Location:

Date of drill:

Drill No:

Drill title:

Candidates assessed

Name:	Employer:	Training passport or record No:	Performance:

Assessor:

Name:

Position:

I confirm that I have assessed the performance of the above candidates against the drill objectives and found it to be satisfactory. I have endorsed their individual records accordingly.

Signature:

Date:

OIM:

I confirm that the above Drill and Assessment was carried out.

Signature:

Date:

ATTACHMENT 5

STANDARD ASSESSMENT DRILLS

Mustering

Drill objectives: Candidates are to demonstrate to the satisfaction of the assessor that on hearing/observing alarms that they:

- ! Correctly identify the alarm, appropriately make safe their work area, and proceed to their assigned muster area.
- ! Arrive at the muster area suitably clothed, with the required personal protective equipment, and with such other equipment as may be assigned on the muster list or station bill.
- ! Follow the instructions and directions of the muster checker or other person in control.
- ! Can don the personal protective equipment.¹

Drill conditions: This drill can form part of the Unit's routine drill programme provided that:

- ! The assessor is in a position to observe the candidates at their muster area.
- ! The drill includes transferring the group from the muster area to the point of evacuation, or escape, if different from the muster area.
- ! Persons being assessed don demonstrate the ability to don all appropriate personal protective equipment.²

Assessment frequency: Personnel should be assessed performing this drill at 21 to 27 month (nominal 24 month) intervals.

Assessment process: Prior to the drill commencing the candidates for assessment should be identified so as to be recognizable by the assessor. The assessor will evaluate each candidate in achieving the drill objectives. In the event the assessor is not satisfied with a candidate's performance, the candidate's supervisor or employer should be informed.

¹ Including both lifejackets and immersion suits, if operating in an area where immersions suits are provided. If sealed immersion suits are provided, individuals may demonstrate donning procedures on suits provided for demonstration and drill purposes.

² For assessment purposes, this part of the drill may take place at the end of the routine drill when other personnel have stood down.

Survival craft boarding procedures

CAUTION - PRECAUTIONS SHOULD BE TAKEN TO PROTECT AGAINST INADVERTENT ACTIVATION OF THE SURVIVAL CRAFT'S RELEASING GEAR DURING THIS DRILL

Drill objectives: By the end of the drill candidates will demonstrate to the satisfaction of the drill assessor that they can:

- ! Board a survival craft in accordance with appropriate procedures.
- ! Secure themselves in the survival craft.
- ! Be able to assist others in the survival craft.

Drill Conditions: This drill can form part of the unit's routine drill programme provided that the assessor is in a position to observe candidates throughout the drill.

Assessment Frequency: Personnel should be assessed performing this drill at 21 to 27 month (nominal 24 month) intervals for each type of survival craft installed.

Assessment Process: Prior to the drill commencing the candidates who are should be identified and recognizable by the assessor. The assessor will ensure that each candidate has achieved the drill objectives. In the event the assessor is not satisfied with a candidate's performance, the candidate's supervisor or employer should be informed.

Survival craft start and launching procedures

CAUTION - PRECAUTIONS SHOULD BE TAKEN TO PROTECT AGAINST INADVERTENT ACTIVATION OF THE SURVIVAL CRAFT'S RELEASING GEAR DURING THIS DRILL

Drill objectives: By the end of the drill, candidates will demonstrate to the satisfaction of the drill assessor that they:

- secure the survival craft for launch;
- can start the survival craft using both primary and back-up systems;
- are familiar with the procedures for launching and releasing the survival craft;
- know which way to steer the survival craft;
- are familiar with the essential equipment within the survival craft¹.

Drill conditions: This drill will not normally form part of the unit's routine drill programme. This drill should be carried out at the end of a routine drill or as a separate event. The number of personnel involved in the drill should be restricted, nominally to a maximum of six.

Assessment frequency: Personnel should be assessed performing this drill at 21 to 27 month (nominal 24 month) intervals.

Assessment process: The assessor should ask the candidate to secure the survival craft ready for launching and then ask them to talk through the start-up launch and steering procedures to achieve the drill objectives. In the event the assessor is not satisfied with a candidate's performance, the candidate's supervisor or employer should be informed.

¹ Care should be exercised to prevent inadvertent broadcast of distress call when handling radios, EPIRBs, etc.

Escape drill

Drill Objectives: By the end of the drill candidates will demonstrate to the satisfaction of the drill assessor that they:

- know the locations of the unit's escape and emergency communications equipment; e.g. life rafts, knotted ropes, scramble nets, other personnel escape systems and EPIRBs;
- know how to deploy the equipment;
- techniques for using the equipment¹; and
- know precautions for jumping into the water from a height.

Drill conditions: This drill will not normally form part of the unit's routine drill programme. This drill should be carried out at the end of a routine drill or as a separate event. When used for assessment purposes the number of participants on the drill should be restricted to a maximum of six.

Assessment frequency: Personnel should be assessed performing this drill at 21 to 27 month (nominal 24 month) intervals.

Assessor: The assessment will be carried out by a supervisor who has the necessary knowledge and skills.

Assessment Process: The assessor should ask candidates to take them to where the escape systems are located. The candidate should then be asked to talk through the procedures for deploying the equipment, outline how the equipment should be used and, when appropriate, demonstrate its use. In the event the assessor is not satisfied with a candidate's performance, the candidate's supervisor or employer should be informed.

¹ Care should be exercised to prevent inadvertent broadcast of distress call when handling radios, EPIRBs, etc.

First aid drill

Drill objectives: By the end of the drill candidates will demonstrate to the satisfaction of the drill assessor that they:

- can take the basic precautions to maintain an airway;
- understand and can apply basic cardio-pulmonary resuscitation (CPR);
- take necessary precautions to control bleeding; and
- know actions to take to assist a hypothermia victim.

Drill conditions: This drill should be carried out with a maximum of six candidates in controlled conditions. If available suitable aids should be used to assist candidates to demonstrate their skills to the satisfaction of the assessor.

Assessment frequency: Personnel should be assessed performing this drill at 21 to 27 month (nominal 24 month) intervals.

Assessment Process: The assessor should take the candidates through the basic requirements of first aid and ask questions of the group, and ask for demonstrations of the various techniques. A first aid mannequin should be available for these demonstrations. In the event the assessor is not satisfied with a candidate's performance, the candidate's supervisor or employer should be informed.

Fire drill

Drill objectives: By the end of the drill candidates will demonstrate to the satisfaction of the drill assessor that they:

- understand the elements of fire and explosion, types and sources of ignition and classification of fire and appropriate extinguishing agents;
- know the onboard fire-fighting organization and their individual responsibilities;
- can locate fire-alarms, fire-fighting equipment and emergency escape routes;
- take necessary actions upon discovery of smoke or fire;
- know the appropriate actions to take to exit a smoke filled space;
- can properly use escape breathing apparatus, if provided and
- can properly use equipment commonly used to extinguish small fires.

Drill conditions: This drill should be carried out with a maximum of six candidates in controlled conditions. Actual use of equipment is encouraged if it can be done safely.

Assessment frequency: Personnel should be assessed performing this drill at 21 to 27 month (nominal 24 month) intervals.

Assessment process: The assessor should examine the candidates in their basic knowledge of fire theory, on-board fire-fighting organization and individual responsibilities. Candidates should be asked to individually demonstrate and walk-through the actions they would take upon discovery of smoke or fire.

ANNEX 16

DRAFT MSC RESOLUTION

ADOPTION OF AMENDMENTS TO THE SEAFARERS' TRAINING, CERTIFICATION AND WATCHKEEPING (STCW) CODE

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING FURTHER article XII and regulation I/1.2.3 of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, hereinafter referred to as "the Convention", concerning the procedures for amending Part A of the Seafarers' Training, Certification and Watchkeeping (STCW) Code,

BEING DEEPLY CONCERNED at the continued loss of ships carrying solid bulk cargoes, sometimes without a trace, and the heavy loss of life incurred,

RECOGNIZING the urgent need to further improve minimum standards of competence of crews sailing on ships carrying solid bulk cargoes, to avoid recurrence of such casualties,

HAVING CONSIDERED the report of the *ad hoc* Working Group on Bulk Carrier Safety convened by the Committee during its sixty-seventh and sixty-eighth sessions,

HAVING ALSO CONSIDERED, at its [seventieth] session, amendments to Part A of the STCW Code proposed and circulated in accordance with article XII(1)(a)(i) of the Convention,

1. ADOPTS, in accordance with article XII(1)(a)(iv) of the Convention, amendments to the STCW Code, the text of which is set out in the Annex to the present resolution;
2. DETERMINES, in accordance with article [XII(1)(a)(vii)(2)] of the Convention, that the said amendments to the STCW Code shall be deemed to have been accepted on [1 July 2002], unless, prior to that date more than one third of Parties or Parties the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant shipping of ships of 100 gross register tons or more, have notified their objections to the amendments;
3. INVITES Parties to the STCW Convention to note that, in accordance with article XII(1)(a)(ix) of the Convention, the annexed amendments to the STCW Code shall enter into force on [1 January 2003] upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with article XII(1)(a)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Parties to the Convention;
5. FURTHER REQUESTS the Secretary-General to transmit copies of this resolution and its Annex to Members of the Organization, which are not Parties to the Convention.

ANNEX

AMENDMENTS TO THE SEAFARERS' TRAINING, CERTIFICATION AND WATCHKEEPING (STCW) CODE

In tables A-II/1 and A-II/2, under the respective functions: Cargo handling and stowage at the operational and management levels, the existing text is to be replaced by the following:

Table A-II/1

Function: Cargo handling and stowage at the operational level

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Monitor the loading, stowage, securing, care during the voyage and the unloading of cargoes	<p><i>Cargo handling, stowage and securing</i></p> <p>Knowledge of the effect of cargo including heavy lifts on the seaworthiness and stability of the ship</p> <p>Knowledge of the safe handling, stowage and securing of cargoes including solid bulk cargoes and dangerous, hazardous and harmful cargoes and their effect on the safety of life and of the ship</p> <p>Ability to establish and maintain effective communications during loading and discharging</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>1 approved in-service experience</p> <p>2 approved training ship experience</p> <p>3 approved simulator training, where appropriate</p>	<p>Cargo operations are carried out in accordance with the cargo plan or other documents and established safety rules/regulations, equipment operating instructions and shipboard stowage limitations</p> <p>The handling of dangerous, hazardous and harmful cargoes complies with international regulations and recognized standards and codes of safe practice</p> <p>Communications are clear, understood and consistently successful</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competency	Criteria for evaluating competence
Inspect and report defects and damages to cargo spaces, hatch covers and ballast tanks	<p>Knowledge¹ and ability to explain where to look for damages and defects most commonly encountered due to:</p> <ol style="list-style-type: none"> loading and discharging operations corrosion severe weather conditions <p>Ability to state which parts of the ship shall be inspected each time in order to cover all parts within a given period of time</p> <p>Identify those elements of the ship structure which are critical to the safety of the ship</p> <p>State the causes of corrosion in cargo spaces and ballast tanks and how corrosion can be identified and prevented</p> <p>Knowledge of procedures on how the inspections shall be carried out</p> <p>Ability to explain how to ensure reliable detection of defects and damages</p> <p>Understanding of the purpose of the "Enhanced Survey Programme"</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> approved in-service experience approved training ship experience approved simulator training, where appropriate 	<p>The inspections are carried out in accordance with laid down procedures and defects and damages are detected and properly reported</p> <p>Where no defects or damages are detected, the evidence from testing and examination clearly indicates adequate competence in adhering to procedures and ability to distinguish between normal and defective or damaged parts of the ship</p>

¹

It should be understood that deck officers need not be qualified in the survey of ships.

Table A-II/2

Function: Cargo handling and stowage at the management level

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competency	Criteria for evaluating competence
Plan and ensure safe loading stowage, securing, care during the voyage and unloading of cargoes	<p>Knowledge of and ability to apply relevant international regulations, codes and standards concerning the safe handling, stowage, securing and transport of cargoes</p> <p>Knowledge of the effect on trim and stability of cargoes and cargo operations</p> <p>Use of stability and trim diagrams and stress-calculating equipment, including automatic data-based (ADB) equipment, and knowledge of loading cargoes and ballasting in order to keep hull stress within a acceptable limits.</p> <p>Stowage and securing of cargoes on board ships, including cargo-handling gear and securing and lashing equipment</p> <p>Loading and unloading operations, with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing</p> <p>General knowledge of tankers and tanker operations</p> <p>Knowledge of the operational and design limitations of bulk carriers</p> <p>Ability to use all available shipboard data related to loading, care and unloading of bulk cargoes</p> <p>Ability to establish procedures for safe cargo handling in accordance with the provisions of the relevant instruments such as BC Code, IMDG Code, MARPOL 73/78 Annexes III and V and other relevant information</p> <p>Ability to explain the basic principles for establishing effective communications and improving working relationship between ship and terminal personnel</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>1 approved in-service experience</p> <p>2 approved simulator training , where appropriate</p> <p>using: stability, trim and stress tables, diagrams and stress- calculating equipment</p>	<p>The frequency and extent of cargo conditions monitoring is appropriate to its nature and prevailing conditions</p> <p>Unacceptable or unforeseen variations in the condition or specification of the cargo is promptly recognized and remedial action is immediately taken and designed to safeguard the safety of the ship and those on board</p> <p>Cargo operations are planned and executed in accordance with established procedures and legislative requirements</p> <p>Stowage and securing of cargoes ensures that stability and stress conditions remain within safe limits at all times during the voyage</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competency	Criteria for evaluating competence
Assess reported defects and damages to cargo spaces, hatch covers and ballast tanks and take appropriate action	<p>Knowledge of the limitations on strength of the vital constructional parts of a standard bulk carrier and ability to interpret given figures for bending moments and shear forces</p> <p>Ability to explain how to avoid the detrimental effects on bulk carriers of corrosion, fatigue and inadequate cargo handling</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>1 approved in-service experience</p> <p>2 approved simulator training , where appropriate</p> <p>using: stability, trim and stress tables, diagrams and stress- calculating equipment</p>	<p>Evaluations are based on accepted principles, well-founded arguments and correctly carried out. The decisions taken are acceptable, taking into consideration the safety of the ship and the prevailing conditions</p>
Carriage of dangerous goods	<p>International regulations, standards, codes and recommendations on the carriage of dangerous cargoes, including the International Maritime Dangerous Goods (IMDG) Code and the Code of Safe Practice for Solid Bulk Cargoes (BC Code).</p> <p>Carriage of dangerous, hazardous and harmful cargoes; precautions during loading and unloading and care during the voyage</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>1 approved in-service experience</p> <p>2 approved simulator training where appropriate</p> <p>3 approved specialist training</p>	<p>Planned distribution of cargo is based on reliable information and is in accordance with established guidelines and legislative requirements</p> <p>Information on dangers, hazards and special requirements is recorded in a format suitable for easy reference in the event of an incident</p>

ANNEX 17

RESOLUTION MSC.75(69)
(adopted on 14 May 1998)

**ADOPTION OF AMENDMENTS TO THE CODE ON INTACT STABILITY FOR ALL TYPES
OF SHIPS COVERED BY IMO INSTRUMENTS (RESOLUTION A.749(18))**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.749(18), by which the Assembly, at its eighteenth session, adopted the Code on Intact Stability for All Types of Ships Covered by IMO Instruments (IS Code),

NOTING that the Assembly authorized the Committee to amend the Code as necessary in the light of further studies and experience gained from the implementation of the provisions contained therein,

DESIRING to keep the IS Code up to date,

HAVING CONSIDERED, at its sixty-ninth session, the amendments to the IS Code proposed by the Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety, at its forty-first session,

1. ADOPTS amendments to the Code on Intact Stability for All Types of Ships Covered by IMO Instruments (resolution A.749(18)), the text of which is set out in the Annex to the present resolution;
2. RECOMMENDS Governments to implement the annexed amendments to the IS Code.

ANNEX

AMENDMENTS TO THE CODE ON INTACT STABILITY FOR ALL TYPES OF SHIPS COVERED BY IMO INSTRUMENTS (RESOLUTION A.749(18))

CONTENTS

- 1 In paragraph 3.3, the word "surface" is replaced by the word "surfaces".
- 2 In paragraph 5.2, the word "cargo" is replaced by the word "cargoes".
- 3 In paragraph 7.3, the word "preparation" is replaced by the word "preparations".

PREAMBLE

- 4 In paragraph 1, in the second sentence, the word "with" is replaced by the word "from".
- 5 In paragraph 3, in the third sentence, the word "environment" is replaced by the word "environmental".

CHAPTER 1 - GENERAL

1.2 Application

- 6 In paragraph 1.2.1, the word "containerships" is replaced by the words "cargo ships carrying containers on deck and containerships".
- 7 In paragraph 1.2.2, the words "The coastal State" are replaced by the word "Administrations".

1.3 Definitions

- 8 In paragraph 1.3.7.2, the word "ship" is replaced by the word "ship-".
- 9 A new paragraph 1.3.9 is inserted as follows:

"A *high-speed craft (HSC)* is a craft capable of a maximum speed, in metres per second (m/s), equal to or exceeding:

$$3.7L^{0.1667}$$

where: L = displacement corresponding to the design waterline (m³)."

- 10 Existing paragraphs 1.3.9 to 1.3.13 are renumbered as paragraphs 1.3.10 to 1.3.14.

11 The following new paragraphs 1.3.15, 1.3.16 and 1.3.17 are added after renumbered paragraph 1.3.14:

"1.3.15 *Length of ship.* The length should be taken as 96% of the total length on a waterline at 85% of the least moulded depth measured from the top of the keel, or as the length from the fore side of the stem to the axis of the rudder stock on the waterline, if that be greater. In ships designed with a rake of keel the waterline on which this length is measured should be parallel to the designed waterline.

1.3.16 *A moulded breadth* is the maximum breadth of the ship measured amidships to the moulded line of the frame in a ship with a metal shell and to the outer surface of the hull in a ship with a shell of any other material.

1.3.17 *A moulded depth* is the vertical distance measured from the top of the keel to the top of the freeboard deck beam at side. In wood and composite ships, the distance is measured from the lower edge of the keel rabbet. Where the form at the lower part of the midship section is of a hollow character, or where thick garboards are fitted, the distance is measured from the point where the line of the flat of the bottom continued inwards cuts the side of the keel.

In ships having rounded gunwales, the moulded depth should be measured to the point of intersection of the moulded lines of the deck and side shell plating, the lines extending as though the gunwale were of angular design.

Where the freeboard deck is stepped and the raised part of the deck extends over the point at which the moulded depth is to be determined, the moulded depth should be measured to a line of reference extending from the lower part of the deck along a line parallel with the raised part."

CHAPTER 2 - GENERAL PROVISIONS AGAINST CAPSIZING AND INFORMATION FOR THE MASTER

2.1 Stability booklet

12 The existing text of paragraphs 2.1.1 and 2.1.2 is replaced by the following:

"2.1.1 Stability data and associated plans should be drawn up in the working language of the ship and any other language the Administration may require. Reference is also made to the International Safety Management (ISM) Code, adopted by the Organization by resolution A.741(18). All translations of the stability booklet should be approved.

2.1.2* Each ship should be provided with a stability booklet, approved by the Administration, which contains sufficient information to enable the master to operate the ship in compliance with the applicable requirements contained in the Code. The Administration may have additional requirements. On a mobile offshore drilling unit, the stability booklet may be referred to as an operating manual. The stability booklet may include information on longitudinal strength. This Code addresses only the stability-related contents of the booklet.*"

13 In paragraph 2.1.4, the word "as" is inserted between the words "Code" and "may" and the word "authority" is replaced by the word "Administration".

- 14 After paragraph 2.1.4, a new heading and relevant footnote are added as follows:

"2.2 Stability calculation by computer"^{*}

^{*} Refer to the Guidelines for shipboard loading and stability computer programs (MSC/Circ.854)".

- 15 Existing paragraphs 2.1.5 to 2.1.8 are replaced by new paragraphs 2.2.1 to 2.2.4 as follows:

"2.2.1 As a supplement to the approved stability booklet, a computer may be used to facilitate the stability calculations mentioned in 2.1.3.9.

2.2.2 The computer hardware and software should be approved for stability calculation by the Administration. The input/output format should, as far as practicable, be easily comparable in information and format to the stability booklet so that the operators will easily gain familiarity with the stability calculations.

2.2.3 A simple and straightforward instruction manual written in the same language as the stability booklet, complying with the provisions of 2.1.1, should be provided.

2.2.4 In order to validate the proper functioning of the computer hardware and software, pre-defined standard loading conditions should be run in the computer periodically, at intervals recommended by the suppliers but at least at every annual load line inspection, and the printout should be maintained on board as check conditions for future reference."

2.2 Operating booklets for certain ships

- 16 Section 2.2 is renumbered as section 2.3.

- 17 The existing paragraph under the heading of this section is numbered as paragraph 2.3.1.

- 18 New paragraphs 2.3.2 and 2.3.3 and the relevant footnote are added after paragraph 2.3.1 as follows:

"2.3.2 For double hull oil tankers of single cargo tank across design, an operation manual for loading and unloading cargo oil should be provided, including operational procedures of loading and unloading cargo oil and detailed data of the initial metacentric height of the oil tanker and that of free surface correction of liquids in cargo oil tanks and ballast tanks during loading and unloading cargo oil (including ballasting and discharging) and cargo oil washing of tanks."^{*}

2.3.3 The stability booklet of ro-ro passenger ships should contain information concerning the importance of securing and maintaining all closures watertight due to the rapid loss of stability which may result when water enters the vehicle deck and the fact that capsizing can rapidly follow.

^{*} Refer to the Guidance on intact stability of existing tankers during liquid transfer operations (MSC/Circ.706/MEPC/Circ.304)."

19 Existing section 2.4 is inserted after the renumbered section 2.3 with the heading and text amended as follows:

"2.4 Permanent ballast

If used, permanent ballast should be located in accordance with a plan approved by the Administration and in a manner that prevents shifting of position. Permanent ballast should not be removed from the ship or relocated within the ship without the approval of the Administration. Permanent ballast particulars should be noted in the ship's stability booklet."

2.3 General precautions against capsizing

20 Existing section 2.3 is renumbered as section 2.5.

21 Existing paragraphs 2.3.1 to 2.3.7 are renumbered as paragraphs 2.5.1 to 2.5.7.

22 In the renumbered paragraph 2.5.1, an asterisk at the end of the paragraph and relevant footnote are added as follows:

"
* Refer to the Guidance to the master for avoiding dangerous situations in following and quartering seas (MSC/Circ.707)."

23 In the renumbered paragraph 2.5.3, an asterisk at the end of the paragraph and relevant footnote are added as follows:

"
* Refer to the Guidelines for the preparation of the Cargo Securing Manual (MSC/Circ.745)."

24 The existing text of the renumbered paragraph 2.5.4 is replaced by the following:

"2.5.4 A ship, when engaged in towing operations, should possess an adequate reserve of stability to withstand the anticipated heeling moment arising from the tow line without endangering the towing ship. Deck cargo on board the towing ship should be so positioned as not to endanger the safe working of the crew on deck or impede the proper functioning of the towing equipment and be properly secured. Tow line arrangements should include towing springs and a method of quick release of the tow."

25 In the renumbered paragraph 2.5.6, the following is added after the last sentence:

"Slack tanks may, in exceptional cases, be used as a means of reducing excessive values of metacentric height. In such cases, due consideration should be given to sloshing effects."

2.5 Operational procedures related to weather conditions

26 Existing section 2.5 is renumbered as section 2.6 and the heading is replaced by the following:

"2.6 Operational procedures before and in heavy weather "

27 Existing paragraphs 2.5.1 to 2.5.12 are renumbered as paragraphs 2.6.1 to 2.6.12.

28 In the renumbered paragraph 2.6.8, an asterisk at the end of the paragraph and relevant footnote are added as follows:

"
* Refer to the Guidance to the master for avoiding dangerous situations in following and quartering seas (MSC/Circ. 707)."

29 In the renumbered paragraph 2.6.9, in the second sentence, the word "the" is inserted between the words "or" and "course".

30 The existing text of the renumbered paragraph 2.6.12 is replaced by the following:

"2.6.12 Dynamically supported craft and high-speed craft should not be intentionally operated outside the worst intended conditions and limitations specified in the relevant certificates, or in documents referred to therein."

CHAPTER 3 - DESIGN CRITERIA APPLICABLE TO ALL SHIPS

3.1.2 Recommended general criteria

31 In paragraph 3.1.2.1, in the first sentence, the words "angle of flooding" are replaced by the words "angle of downflooding".

32 In paragraph 3.1.2.6, the reference in the formula to "0.02" is replaced by the reference "0.196"; the reference in the definition of M_R to "metre-tonnes" is replaced by the reference "kNm"; and in the definition of KG, the word "keel" is replaced by the word "baseline".

3.2.2 Recommended weather criterion

33 In paragraph 3.2.2.2, in the definition of Z, the word "draught" is replaced by the words "mean draught"; in the definition of P, the reference to "504 N/m²" is replaced by the words "wind pressure of 504 Pa"; and in the definition of g, the reference to "9.81 m/s²" is replaced by "gravitational acceleration of 9.81 m/s²".

34 In paragraph 3.2.2.3, in the definition of L, the words "waterline length of the ship (m)" are replaced by the words "length of the ship at waterline (m)".

3.3 Effect of free surfaces of liquids in tanks

35 The existing text of section 3.3 is replaced by the following:

"3.3.1 For all loading conditions, the initial metacentric height and the righting lever curve should be corrected for the effect of free surfaces of liquids in tanks."

3.3.2 Free surface effects should be considered whenever the filling level in a tank is less than 98% of full condition. Free surface effects need not be considered where a tank is nominally full, i.e. filling level is 98% or above. Free surface effects for small tanks may be ignored under condition specified in 3.3.9.*

3.3.3 Tanks which are taken into consideration when determining the free surface correction may be in one of two categories:

- .1 Tanks with filling levels fixed (e.g. liquid cargo, water ballast). The free surface correction should be defined for the actual filling level to be used in each tank.
- .2 Tanks with filling levels variable (e.g. consumable liquids such as fuel oil, diesel oil and fresh water, and also liquid cargo and water ballast during liquid transfer operations). Except as permitted in 3.3.5 and 3.3.6, the free surface correction should be the maximum value attainable between the filling limits envisaged for each tank, consistent with any operating instructions.

3.3.4 In calculating the free surface effects in tanks containing consumable liquids, it should be assumed that for each type of liquid at least one transverse pair or a single centreline tank has a free surface and the tank or combination of tanks taken into account should be those where the effect of free surfaces is the greatest.

3.3.5 Where water ballast tanks, including anti-rolling tanks and anti-heeling tanks, are to be filled or discharged during the course of a voyage, the free surface effects should be calculated to take account of the most onerous transitory stage relating to such operations.

3.3.6 For ships engaged in liquid transfer operations, the free surface corrections at any stage of the liquid transfer operations may be determined in accordance with the filling level in each tank at that stage of the transfer operation.

3.3.7 The corrections to the initial metacentric height and to the righting lever curve should be addressed separately as follows.

3.3.7.1 In determining the correction to initial metacentric height, the transverse moments of inertia of the tanks should be calculated at 0° angle of heel according to the categories indicated in 3.3.3.

3.3.7.2 The righting lever curve may be corrected by any of the following methods subject to the agreement of the Administration:

- .1 Correction based on the actual moment of fluid transfer for each angle of heel calculated.
- .2 Correction based on the moment of inertia, calculated at 0° angle of heel, modified at each angle of heel calculated.

* Refer to the intact stability design criteria, contained in MARPOL regulation I/25A, together with the associated Unified Interpretations.

- .3 Correction based on the summation of M_{fs} values for all tanks taken into consideration (see 3.3.8).

With the exception of .3 above, corrections may be calculated according to the categories indicated in 3.3.3.

Whichever method is selected for correcting the righting lever curve, only that method should be presented in the ship's stability booklet. However, where an alternative method is described for use in manually calculated loading conditions, an explanation of the differences which may be found in the results, as well as an example correction for each alternative, should be included.

3.3.8 The values of M_{fs} for each tank may be derived from the formula:

$$M_{fs} = v b k \sqrt{\delta}$$

where:

M_{fs} is the free surface moment at any inclination, in m.tonnes
 v is the tank total capacity, in m^3
 b is the tank maximum breadth, in m
 k is the mass density of liquid in the tank, in tonnes/ m^3
 $*$ is equal to v/blh (the tank block coefficient)
 h is the tank maximum height, in m
 l is the tank maximum length, in m
 k is the dimensionless coefficient to be determined from table 3.3.8 according to the ratio b/h . The intermediate values are determined by interpolation.

3.3.9 Small tanks which satisfy the following condition using the values of "k" corresponding to an angle of inclination of 30° , need not be included in the correction:

$$M_{fs} / \Delta_{min} < 0.01 \text{ m}$$

where:

Δ_{min} is the minimum ship displacement calculated at d_{min} , in tonnes
 d_{min} is the minimum mean service draught of the ship without cargo, with 10% stores and minimum water ballast, if required, in m.

3.3.10 The usual remainder of liquids in empty tanks need not be taken into account in calculating the corrections, provided that the total of such residual liquids does not constitute a significant free surface effect.

**Table 3.3.8 - Values for coefficient "k"
for calculating free surface corrections**

$k = \frac{\sin \theta}{12} \left(1 + \frac{\tan^2 \theta}{2}\right) \cdot \frac{b}{h}$							$k = \frac{\cos \theta}{8} \left(1 + \frac{\tan \theta}{b/h}\right) - \frac{\cos \theta}{12(b/h)^2} \left(1 + \frac{\cot^2}{2}\right)$							
where $\cot \theta \geq \frac{b}{h}$							where $\cot \theta < \frac{b}{h}$							
θ b/h	5°	10°	15°	20°	30°	40°	45°	50°	60°	70°	75°	80°	85°	θ b/h
20	0.11	0.12	0.12	0.12	0.11	0.10	0.09	0.09	0.09	0.05	0.04	0.03	0.02	20
10	0.07	0.11	0.12	0.12	0.11	0.10	0.10	0.09	0.07	0.05	0.04	0.03	0.02	10
5	0.04	0.07	0.10	0.11	0.11	0.11	0.10	0.10	0.08	0.07	0.06	0.05	0.04	5
3	0.02	0.04	0.07	0.09	0.11	0.11	0.11	0.10	0.09	0.08	0.07	0.06	0.05	3
2	0.01	0.03	0.04	0.06	0.09	0.11	0.11	0.11	0.10	0.09	0.09	0.08	0.07	2
1.5	0.01	0.02	0.03	0.05	0.07	0.10	0.11	0.11	0.11	0.11	0.10	0.10	0.09	1.5
1	0.01	0.01	0.02	0.03	0.05	0.07	0.09	0.10	0.12	0.13	0.13	0.13	0.13	1
0.75	0.01	0.01	0.01	0.02	0.02	0.04	0.04	0.05	0.09	0.16	0.18	0.21	0.16	0.75
0.5	0.00	0.01	0.01	0.02	0.02	0.04	0.04	0.05	0.09	0.16	0.18	0.21	0.23	0.5
0.3	0.00	0.00	0.01	0.01	0.01	0.02	0.03	0.03	0.05	0.11	0.19	0.27	0.34	0.3
0.2	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.04	0.07	0.13	0.27	0.45	0.2
0.1	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.04	0.06	0.14	0.53	0.1

3.5 Standard conditions of loading to be examined

- 36 In the heading of section 3.5, the words "conditions of loading" are replaced by the words "loading conditions".

3.5.1 Loading conditions

- 37 In paragraphs 3.5.1.3.1 and 3.5.1.3.2, the word "weight" is replaced by the word "mass".

3.5.2 Assumptions for calculating loading conditions

- 38 In paragraphs 3.5.2.5 and 3.5.2.6, the word "weight", wherever appears, is replaced by the word "mass".

CHAPTER 4 - SPECIAL CRITERIA FOR CERTAIN TYPES OF SHIPS

4.1 Cargo ships carrying timber deck cargoes

- 39 In paragraph 4.1.3, in the introductory phrase, the expression "and 3.2" is added after "3.1.2.4".

40 In paragraph 4.1.3.3, in the first sentence, the words "be positive" are replaced by the words "not be less than 0.10 m"; and the last sentence is deleted.

41 In paragraph 4.1.3, the following new subparagraph .4 is added after existing subparagraph .3:

"4 When determining the ability of the ship to withstand the combined effects of beam wind and rolling according to 3.2, the 16° limiting angle of heel under action of steady wind should be complied with, but the additional criterion of 80% of the angle of deck edge immersion may be ignored".

42 In paragraph 4.1.5.3.1, the words "should have" are replaced by the word "has".

4.2 Fishing vessels

43 In paragraph 4.2.3.1, in the second sentence, the word "it" is inserted after the word "should".

44 The existing text of paragraphs 4.2.4.1 and 4.2.4.2 is replaced by the following:

"4.2.4.1 The Administration may apply the provisions of 3.2 to fishing vessels of 45 m length and over.

4.2.4.2 For fishing vessels in the length range between 24 m and 45 m, the Administration may apply the provisions of 3.2. Alternatively the values of wind pressure (see 3.2.2.2) may be taken from the following table:

h (m)	1	2	3	4	5	6 and over
P (Pa)	316	386	429	460	485	504

where h is the vertical distance from the centre of the projected vertical area of the vessel above the waterline, to the waterline."

45 In paragraph 4.2.5.1.2, the words "and a percentage of stores, fuel, etc., as agreed by the Administration" are added at the end.

46 In the heading of section 4.2.6, the expression "24 m" is replaced by "30 m".

4.5 Offshore supply vessels

47 In paragraph 4.5.3.1, in the first sentence, the word "standards" is inserted after the words "design and construction".

4.6 Mobile offshore drilling units (MODUs)

48 In the heading of section 4.6.3, the word "wind" is inserted between the words "and" and "heeling".

49 In paragraph 4.6.5.2.1, in the second sentence, the words "equal or" are inserted after the words "must be"; and in the definitions of area "A" and area "B", the word "arm" is replaced by the word "moment".

50 In paragraph 4.6.5.2.2, the expression "(GM cannot be taken to be greater than 2.44 m)" is moved to after the definition of parameter " k ".

51 In paragraph 4.6.5.3, in the first definition of GM, the expression "restoring energy ratio" is replaced by the expression "reserve energy ratio".

52 In paragraph 4.6.5.5, in the equation for " a ", the symbol " A_{MIN} " is replaced by the symbol " a_{min} ".

4.7 Pontoons

53 In paragraph 4.7.2.2.1, the word "unless" is replaced by the word "except".

54 In paragraph 4.7.2.2.3.3, the word "draught" is replaced by the words "mean draught".

55 In paragraph 4.7.3.1, the word "the" is inserted between the words "under" and "righting".

56 In paragraph 4.7.3.2, the expression "0.54 kPa" is replaced by "540 Pa".

4.8 Dynamically supported craft (DSC)

57 A new paragraph 4.8.1.3 is added after existing paragraph 4.8.1.2 as follows:

"4.8.1.3 The provisions of this chapter do not apply to any DSC the keel of which is laid, or which is subject to repairs, alterations or modifications of a major character, on or after 1 January 1996."

58 In paragraph 4.8.2.1.2, the word "damage" is replaced by the word "damaged".

59 In paragraph 4.8.3, the word "chapter" is replaced by the word "part".

60 In paragraph 4.8.6.2, the word "its" is inserted after the words "prior to".

61 In paragraph 4.8.7.1.1.4, the symbol " Z " is replaced, wherever appears, by the symbol " Z_v ".

62 In paragraph 4.8.7.1.2.3 and figure 4.8.7-3, the symbol " g " is replaced by the symbol " h ".

4.9 Containerships greater than 100 m

63 In paragraph 4.9.2.6, in the definition of B , the symbol " B " is replaced by the symbol " B_D "; the words " D '= moulded depth of the ship, corrected for defined parts of volumes within the hatch coamings according to the formula:" are inserted before the formula for " D ' "; and the explanation after " KG =" is replaced by the words "height of the centre of mass above base, corrected for free surface effect, not be taken as less than d , in m".

64 In paragraph 4.9.2.6, the following text is added at the end:

R_H	=	length of each hatch coaming within $L/4$ forward and aft from amidships, in m (see figure 4.9-1);
b	=	mean width of hatch coamings within $L/4$ forward and aft from amidships, in m (see figure 4.9-1);
h	=	mean height of hatch coamings within $L/4$ forward and aft from amidships, in m (see figure 4.9-1);
L	=	length of the ship, in m;
B	=	breadth of the ship on the waterline, in m;
B_m	=	breadth of the ship on the waterline at half mean draught, in m.

The shaded areas in figure 4.9-1 represent partial volumes within the hatch coamings considered contributing to resistance against capsizing at large heeling angles when the ship is on a wave crest."

65 In figure 4.9-1, the symbol " $B/4$ " is replaced by the symbol $B_D/4$ ".

66 The following new section 4.10 is added after existing section 4.9:

"4.10 High-speed craft

High-speed craft as defined in 1.3.9, constructed on or after 1 January 1996, to which chapter X of the International Convention for the Safety of Life at Sea, 1974 applies should comply with stability requirements of the HSC Code."

CHAPTER 5 - ICING CONSIDERATIONS

5.5 Dynamically supported craft

67 In paragraph 5.5.1, in the second sentence, the word "for" is replaced by the word "of".

68 At the end of chapter 5, in the "CHART OF AREAS OF ICING CONDITIONS", the area north of latitude 56°N in the Baltic Sea is shaded according to paragraph 5.3.2.1. (see the same chart in the 1993 Torremolinos Protocol).

CHAPTER 6 - CONSIDERATIONS FOR WATERTIGHT INTEGRITY

6.4 Cargo ports and other similar openings

69 The following new paragraphs 6.4.3 and 6.4.4 are added after existing paragraph 6.4.2:

"6.4.3* Cargo port and other similar openings in passenger ships to which the International Convention for the Safety of Life at Sea, 1974 applies should comply with regulations II-1/17, 20 and 20-1 of this Convention. In addition, such openings in ro-ro passenger ships to which this Convention applies, should comply with regulation II-1/23-2 of this Convention.

6.4.4* Cargo port and other similar openings in cargo ships to which the International Convention for the Safety of Life at Sea, 1974 applies should comply with regulation II-1/25-10 of this Convention."

6.5 Sidescuttles, window scuppers, inlets and discharges

70 The existing text of paragraph 6.5.1 is replaced by the following:

"6.5.1* In passenger ships to which the International Convention for the Safety of Life at Sea, 1974 applies, openings in shell plating below the bulkhead deck should comply with regulation II-1/17 of this Convention.

Watertight integrity above the bulkhead deck should comply with regulation II-1/20 of this Convention.

In addition, in ro-ro passenger ships, watertight integrity below the bulkhead deck should comply with regulation II-1/20-2 and integrity of the hull and superstructure should comply with regulation II-1/23-2 of this Convention."

71 In paragraph 6.5.4.10, in the first sentence, the word "discharge" is replaced by the word "discharges".

72 The following new paragraph 6.5.5 is added after existing paragraph 6.5.4:

"6.5.5 In cargo ships to which the International Convention for the Safety of Life at Sea, 1974 applies, external openings should comply with regulation II-1/25-10 of this Convention."

6.8 Freeing ports

73 In paragraph 6.8.1, in the first sentence, the word "the" is inserted before the words "freeboard" and "working".

74 In paragraph 6.8.2.1, in the first sentence, the word "paragraphs" is replaced by the word "subparagraphs".

CHAPTER 7 - DETERMINATION OF LIGHTSHIP DISPLACEMENT AND CENTRES OF GRAVITY

7.3 Preparations for the inclining test

75 The existing text of subparagraph .4 of paragraph 7.3.1.1 is replaced by the following:

".4 Measuring devices:

- .1 pendulums – approximate location and length;
- .2 U-tubes – approximate location and distance between legs;
- .3 inclinometers - location and details of approvals and calibrations."

76 In paragraph 7.3.2.3, in the second sentence, the word "incline" is replaced by the word "inclining".

77 In paragraph 7.3.2.6, in the fourth sentence, the words "water specific gravity" are replaced by the words "specific gravity of water".

78 The existing text of paragraph 7.3.2.8 is replaced by the following:

"7.3.2.8 The total weight used should be sufficient to provide a minimum inclination of one degree and a maximum of four degrees of heel to each side. The Administration may, however, accept a smaller inclination angle for large ships provided that the requirements on pendulum deflection or U-tube difference in height in 7.3.2.9 are complied with. Test weights should be compact and of such a configuration that the vertical centre of gravity of the weights can be accurately determined. Each weight should be marked with an identification number and its weight. Re-certification of the test weights should be carried out prior to the inclining. A crane of sufficient capacity and reach, or some other means, should be available during the inclining test to shift weights on the deck in an expeditious and safe manner. Water ballast transfer may be carried out, when it is impractical, to incline using solid weights, if acceptable to the Administration."

79 In paragraph 7.3.2.9, the last two sentences are replaced by the following:

"One or more pendulums may be substituted by other measuring devices (U-tubes or inclinometers) at the discretion of the Administration. Alternative measuring devices should not be used to reduce the minimum inclining angles recommended in 7.3.2.8."

7.4 Plans required

80 In paragraph 7.4.2, the words "curves of form" and the parentheses are deleted.

81 The existing text of subparagraph .4 of paragraph 7.4 is replaced by the following :

".4 capacity plan showing capacities and vertical and longitudinal centres of gravity of cargo spaces, tanks, etc. When ballast water is used as inclining weights, the transverse and vertical centres of gravity for the applicable tanks, for each angle of inclination, must be available;".

82 Existing section 7.6 is deleted from the chapter and its text is included in a new annex 3 (see paragraph 94 below).

ANNEX 1 - DETAILED GUIDANCE FOR THE CONDUCT OF AN INCLINING TEST

2.1 Free surface and tankage

83 In paragraph 2.1.1, in the first sentence, the word "it" is replaced by the word "they"; in the third sentence, the words "incline" is replaced by the word "inclining"; in the formula for free surface moment, the word "Free surface moment" are replaced by the symbol " M_{fs} "; and in the formula for free surface correction and explanations thereto, the symbol "FSM" is replaced by the symbol M_{fs} .

84 In paragraph 2.1.1, in the equation of the free surface moment, the word "Sum" is replaced by the summation sign " Σ ".

85 At the end of paragraph 2.1.1, the following is added:

"When ballast water is used as inclining weight, the actual transverse and vertical movements of the liquid should be calculated taking into account the change of heel of the ship. Free surface corrections as defined in this paragraph should not apply to the inclining tanks."

86 The existing text of section 2.2 "Mooring arrangements" is replaced by the following:

"2.2 Mooring arrangements

The importance of good mooring arrangements cannot be over-emphasised. The arrangement selections will be dependent upon many factors. Among the most important are depth of water, wind and current effects. Whenever possible, the ship should be moored in a quiet, sheltered area free from extraneous forces such as propeller wash from passing ships, or sudden discharges from shore side pumps. The depth of water under the hull should be sufficient to ensure that the hull will be entirely free of the bottom. The tide conditions and trim of the ship during the test should be considered. Prior to the test, the depth of water should be measured and recorded in as many locations as necessary to ensure the ship will not contact the bottom. If marginal, the test should be conducted during high tide or the ship moved to deeper water.

2.2.1 The mooring arrangement should ensure that the ship will be free to list without restraint for a sufficient period of time to allow a satisfactory reading of the heeling angle, due to each weight shift, to be recorded.

2.2.2 The ship should be held by lines at the bow and the stem, attached to bollards and/or cleats on the deck. If suitable restraint of the ship cannot be achieved using deck fittings, then temporary padeyes should be attached as close as possible to the centreline of the ship and as near the waterline as practical. Where the ship can be moored to one side only, it is good practice to supplement the bow and stern lines with two spring lines in order to maintain positive control of the ship, as shown in figure 2.2.1. The leads of the spring lines should be as long as practicable. Cylindrical camels should be provided between the ship and the dock. All lines should be slack, with the ship free of the pier and camels, when taking readings.

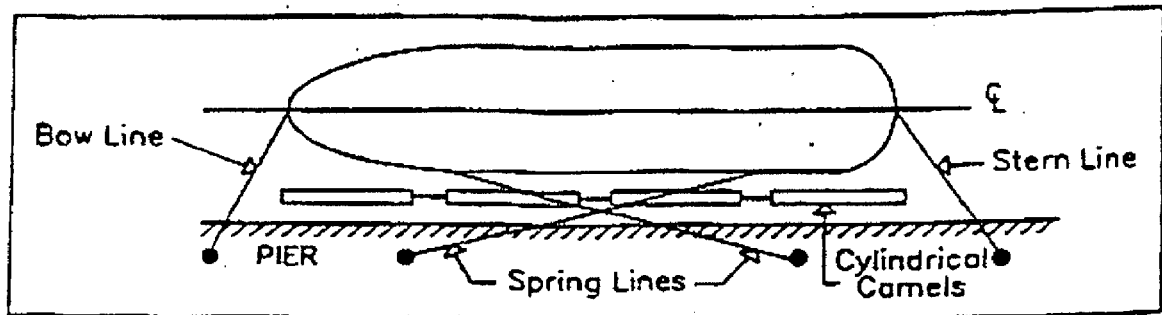


Figure 2.2.1

2.2.2.1 If the ship is held off the pier by the combined effect of the wind and current, a superimposed heeling moment will act on the ship throughout the test. For steady conditions this will not affect the results. Gusty wind or uniformly varying wind and/or current will cause these superimposed heeling moments to change, which may require additional test points to obtain a valid test. The need for additional test points can be determined by plotting test points as they are obtained.

2.2.2.2 If the ship is pressed against the fenders by wind and/or current, all lines should be slack. The cylindrical camels will prevent binding but there will be an additional superimposed heeling moment due to the ship bearing against the camels. This condition should be avoided where possible but, when used, consideration should be given to pulling the ship free of the dock and camels and letting the ship drift as readings are taken.

2.2.2.3 Another acceptable arrangement is where the combined wind and current are such that the ship may be controlled by only one line at either the bow or the stern. In this case, the control line should be led from on or near the centre line of the ship with all lines but the control line slack, the ship is free to veer with the wind and/or current as readings are taken. This can sometimes be troublesome because varying wind and/or current can cause distortion of the plot.

2.2.3 The mooring arrangement should be submitted to the approval authority for review prior to the test.

2.2.4 If a floating crane is used for handling inclining weights, it should not be moored to the ship."

2.3 Test weights

87 Paragraph 2.3.2 is deleted.

88 Existing paragraphs 2.3.3 to 2.3.5 are renumbered as paragraphs 2.3.2 to 2.3.4.

89 The existing text of the renumbered paragraph 2.3.4 is replaced by the following:

"2.3.4 Where the use of solid weights to produce the inclining moment is demonstrated to be impracticable, the movement of ballast water may be permitted as an alternative method. This acceptance would be granted for a specific test only, and approval of the test procedure by the Administration is required. As a minimal prerequisite for acceptability, the following conditions should be required:

- .1 inclining tanks should be wall-sided and free of large stringers or other internal members that create air pockets. Other tank geometries may be accepted at the discretion of the Administration;
- .2 tanks should be directly opposite to maintain ship's trim;
- .3 specific gravity of ballast water should be measured and recorded;
- .4 pipelines to inclining tanks should be full. If the ship's piping layout is unsuitable for internal transfer, portable pumps and pipes/hoses may be used;
- .5 blanks must be inserted in transfer manifolds to prevent the possibility of liquids being "leaked" during transfer. Continuous valve control must be maintained during the test;
- .6 all inclining tanks must be manually sounded before and after each shift;
- .7 vertical, longitudinal and transverse centres should be calculated for each movement;
- .8 accurate sounding/ullage tables must be provided. The ship's initial heel angle should be established prior to the incline in order to produce accurate values for volumes and transverse and vertical centres of gravity for the inclining tanks at every angle of heel. The draught marks amidships (port and starboard) should be used when establishing the initial heel angle;
- .9 verification of the quantity shifted may be achieved by a flowmeter or similar device; and
- .10 the time to conduct the inclining must be evaluated. If time requirements for transfer of liquids is considered too long, water may be unacceptable because of the possibility of wind shifts over long periods of time."

2.4 Pendulums

90 In paragraph 2.4.1, the following new text is inserted before the last sentence:

"On large ships with high GM, pendulum lengths in excess of the length recommended above may be required to obtain the minimum deflection. In such cases, the trough, as shown in figure A1-2.4.6, should be filled with high viscosity oil."

91 In paragraph 2.4.7, the following sentence is added at the end of the paragraph:

"The Administration may approve an alternative arrangement when this is found impractical."

92 After paragraph 2.4.7, a new heading is inserted as follows:

"2.5 U-tubes"

93 Existing paragraph 2.4.8 is replaced by the following:

"2.5.1 The legs of the device should be securely positioned as far outboard as possible and should be parallel to the centreline plane of the ship. The distance between the legs should be measured perpendicular to the centreline plane. The legs should be vertical, as far as practical.

2.5.2 Arrangements should be made for recording all readings at both legs. For easy reading and checking for air pockets, clear plastic tube or hose should be used throughout. The U-tube should be pressure tested prior to the inclining test to ensure watertightness.

2.5.3 The horizontal distance between the legs of the U-tube should be sufficient to obtain a level difference of at least 15 cm between the upright and the maximum inclination to each side.

2.5.4 Normally, water would be used as the liquid in the U-tube. Other low-viscosity liquids may also be considered.

2.5.5 The tube should be free of air pockets. Arrangements should be made to ensure that the free flow of the liquid in the tube is not obstructed.

2.5.6 When a U-tube is used as a measuring device, due consideration should be given to the prevailing weather conditions (see 4.1.1.3):

- .1 if the U-tube is exposed to direct sunlight, arrangements should be made to avoid temperature differences along the length of the tube;
- .2 if temperatures below 0°C are expected, the liquid should be a mixture of water and an anti-freeze additive; and
- .3 where heavy rain squalls can be expected, arrangements should be made to avoid additional water entering the U-tube.

2.6 Inclinometers

The use of inclinometers should be subject to at least the following recommendations:

- .1 the accuracy should be equivalent to that of a pendulum;
- .2 the sensitivity of the inclinometer should be such that the non-steady heeling angle of the ship can be recorded throughout the measurement;
- .3 the recording period should be sufficient to accurately measure the inclination. The recording capacity should be generally sufficient for the whole test;
- .4 the instrument should be able to plot or print the recorded inclination angles on paper;

- .5 the instrument should have linear performance over the expected range of inclination angles;
- .6 the instrument should be supplied with the manufacturer's instructions giving details of calibration, operating instructions, etc.; and
- .7 it should be possible to demonstrate the required performance to the satisfaction of the Administration during the inclining test."

94 A new annex 3 entitled "Determination of ship's stability by means of rolling period test (for ships up to 70 m in length)" including the text of existing section 7.6 is added (see paragraph 82 above).

ANNEX 18

RESOLUTION MSC.76(69)
(adopted on 14 May 1998)

**EXTENDED APPLICATION OF THE EXPLANATORY NOTES TO THE SOLAS
REGULATIONS ON SUBDIVISION AND DAMAGE STABILITY OF CARGO
SHIPS OF 100 METRES IN LENGTH AND OVER (RESOLUTION A.684(17))**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.684(17) on Explanatory notes to the SOLAS regulations on subdivision and damage stability of cargo ships of 100 m in length and over (Explanatory Notes) and that the Committee, in adopting the regulations contained in SOLAS chapter II-1 part B-1, invited Administrations to note that the regulations should be applied in conjunction with the aforementioned Explanatory Notes which were adopted by the Organization in order to ensure uniform application of the SOLAS regulations,

NOTING resolution MSC.47(66), by which the Committee, at its sixty-sixth session, adopted amendments to SOLAS chapter II-1 part B-1, concerning damage stability requirements for cargo ships of 80 m and over but not exceeding 100 m in length, which are due to enter into force on 1 July 1998,

RECOGNIZING that, when the above amendments to SOLAS chapter II-1 part B-1 enter into force, there will be a need for explanatory notes applicable to cargo ships of 80 m and over but less than 100 m in length,

HAVING CONSIDERED, at its sixty-ninth session, the recommendation made by the Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety, at its forty-first session,

1. RESOLVES that the Explanatory Notes adopted by resolution A.684(17) should also apply to cargo ships of 80 m and over but less than 100 m in length;
2. INVITES Governments to apply the present resolution when implementing the regulations on subdivision and damage stability for such cargo ships, contained in the amendments to SOLAS chapter II-1 part B-1 adopted by resolution MSC.47(66).

ANNEX 19

PROPOSED AMENDMENTS TO SOLAS CHAPTER VII TO MAKE THE INF CODE MANDATORY

CHAPTER VII CARRIAGE OF DANGEROUS GOODS

PART A

- 1 The following sentence is added at the end of existing paragraph 3 of regulation 1:

"In addition, the requirements of Part D shall apply to the carriage of INF cargo as defined in regulation 14.2"
- 2 The following new part D is added after existing part C:

"PART D

SPECIAL REQUIREMENTS FOR THE CARRIAGE OF PACKAGED IRRADIATED NUCLEAR FUEL, PLUTONIUM AND HIGH-LEVEL RADIOACTIVE WASTES ON BOARD SHIPS

Regulation 14

Definitions

For the purpose of this part, unless expressly provided otherwise:

- 1 *INF Code* means the Code for the Safe Carriage of Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships adopted by the Maritime Safety Committee of the Organization by resolution MSC...(…), as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the annex other than chapter I.
- 2 *INF cargo* means irradiated nuclear fuel, plutonium and high-level radioactive wastes carried as cargo in accordance with Class 7 of the IMDG Code, schedule 10, 11, 12 or 13.
- 3 *Irradiated nuclear fuel* means material containing uranium, thorium and/or plutonium isotopes which has been used to maintain a self-sustaining nuclear chain reaction.
- 4 *Plutonium* means the resultant mixture of isotopes of that material extracted from irradiated nuclear fuel from reprocessing.
- 5 *High-level radioactive wastes* means liquid wastes resulting from the operation of the first stage extraction system or the concentrated wastes from subsequent extraction stages, in a facility for reprocessing irradiated fuel, or solids into which such liquid wastes have been converted.
- 6 *IMDG Code* means the International Maritime Dangerous Goods Code adopted by the Assembly of the Organization by resolution A.716(17), as amended and may be amended by the Maritime Safety Committee.

Regulation 15

Application to ships carrying INF cargo

1 Except as provided for in paragraph 2, this part shall be applied to all ships regardless of the date of construction and size, including cargo ships of less than 500 gross tonnage, engaged in the carriage of INF cargo.

2 This part and the INF Code do not apply to any warship, naval auxiliary or other ship owned or operated by a Contracting Government and used, for the time being, only on government non-commercial service; however, each Administration shall ensure, by the adoption of appropriate measures not impairing operations or operational capabilities of such ships owned or operated by it, that such ships carrying INF cargo act in a manner consistent, so far as reasonable and practicable, with this part and the INF Code.

3 Nothing in this part or the INF Code shall prejudice the rights and duties of governments under international law and any action taken to enforce compliance shall be consistent with international law, including the relevant provisions of the 1982 United Nations Convention on the Law of the Sea.

Regulation 16

Requirements for ships carrying INF cargo

1 A ship carrying INF cargo shall, in addition to complying with applicable requirements of this annex, comply with the requirements of the INF Code, and shall be surveyed and certified as provided for in that Code.

2 A ship holding a certificate issued pursuant to the provisions of paragraph 1 shall be subject to the control established in regulation I/19 and XI/4. For this purpose, such certificate shall be treated as a certificate issued under regulations I/12 or I/13."

ANNEX 20**DRAFT REVISED INF CODE****Foreword**

On 4 November 1993, the eighteenth session of the Assembly, by resolution A.748(18), adopted the Code for the Safe Carriage of Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes in Flasks on Board Ships (INF Code). The INF Code covers such matters as damage stability, fire protection, temperature control of cargo spaces, structural consideration, cargo securing arrangements, electrical supplies, radiological protection equipment and management, training and shipboard emergency plans.

On 27 November 1997, the twentieth session of the Assembly, by resolution A.853(20), adopted amendments to the INF Code to include specific requirements for shipboard emergency plans and notification in the event of an incident.

The Maritime Safety Committee, at its sixty-eighth session in May-June 1997 and the Marine Environment Protection Committee, at its thirty-ninth session in March 1997, agreed that the INF Code, as adopted by resolutions A.748(18) and A.853(20), should be made mandatory under the 1974 SOLAS Convention.

In making the INF Code mandatory, certain redrafting has been made to make the text suitable for a mandatory instrument.

Chapter 1 - General

1.1 Definitions

1.1.1 For the purpose of this Code:

- .1 *Administration* means the Government of the State whose flag the ship is entitled to fly.
- .2 *Convention* means the International Convention for the Safety of Life at Sea, 1974, as amended.
- .3 *INF cargo* means irradiated nuclear fuel, plutonium and high-level radioactive wastes carried as cargo in accordance with Class 7 of the IMDG Code, schedule 10, 11, 12 or 13.
- .4 *Irradiated nuclear fuel* means material containing uranium, thorium and/or plutonium isotopes which has been used to maintain a self-sustaining nuclear chain reaction.
- .5 *Plutonium* means the resultant mixture of isotopes of that material extracted from irradiated nuclear fuel from reprocessing.
- .6 *High-level radioactive wastes* means liquid wastes resulting from the operation of the first stage extraction system or the concentrated wastes from subsequent extraction stage, in a facility for reprocessing irradiated nuclear fuel, or solids into which such liquid wastes have been converted.
- .7 *IMDG Code* means the International Maritime Dangerous Goods Code adopted by the Assembly of the Organization by resolution A.716(17), as amended and may be amended by the Maritime Safety Committee.
- .8 *IBC Code* means the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk, as defined in regulation VII/8.1 of the Convention.
- .9 *Incident* means any occurrence or series of occurrences, including loss of container integrity, having the same origin which results or may result in a release, or probable cargo release of INF cargo.
- .10 *Release* means the escape of INF cargo its containment system or the loss of an INF Code package.

1.1.2 For the purpose of this Code, ships carrying INF cargo are assigned to the following three classes, depending on the total activity of INF cargo which is carried on board:

Class INF 1 ship - Ships which are certified to carry INF cargo with an aggregate activity less than 4,000 TBq.

Class INF 2 ship - Ships which are certified to carry irradiated nuclear fuel or high-level radioactive wastes with an aggregate activity less than 2×10^6 TBq and ships which are certified to carry plutonium with an aggregate activity less than 2×10^5 TBq.

Class INF 3 ship - Ships which are certified to carry irradiated nuclear fuel or high-level radioactive wastes and ships which are certified to carry plutonium with no restriction of the maximum aggregate activity of the materials.

1.2 Application

1.2.1 This Code shall apply to ships regardless of size, including cargo ships of less than 500 gross tonnage, and regardless of the date of construction, engaged in the carriage of INF cargo.

1.2.2 In addition to the requirements of this Code, the provisions of the IMDG Code should apply to the carriage of INF cargo.

1.2.3 INF cargo that would be required to be carried on Class INF 3 ships shall not be allowed on passenger ships.

1.3 Survey and certification

1.3.1 Before the carriage of INF cargo takes place, a ship intended to carry INF cargo shall be subject to an initial survey which shall include a complete examination of its structure, equipment, fittings, arrangements and material in so far as the ship is covered by this Code.

1.3.2 The Administration shall, after the initial survey as required in 1.3.1, provide the ship with the International Certificate of Fitness for the Carriage of INF Cargo, the form of which is set out in the appendix.

1.3.3 A ship certified for the carriage of INF cargo shall be subject to inspections and surveys under the applicable provisions of chapter I of the Convention in order to ensure that the structure, equipment, fittings, arrangements and material comply with the provisions of this Code.

1.3.4 The International Certificate of Fitness for the Carriage of INF Cargo shall cease to be valid if the survey required by 1.3.3 has not been carried out or has shown that the ship does not comply with the provisions of this Code.

Chapter 2 - Damage stability

2.1 The damage stability of a Class INF 1 ship shall be to the satisfaction of the Administration.

2.2 A Class INF 2 ship shall:

- .1 if it is built to the standards for a passenger ship, comply with the damage stability requirements of part B of chapter II-1 of the Convention; or
- .2 if it is built to the standards for a cargo ship, comply with the damage stability requirements of part B-1 of chapter II-1 of the Convention, regardless of the length of the ship.

2.3 A Class INF 3 ship shall comply with:

- .1 the damage stability requirements for type 1 ship survival capability and location of cargo spaces in chapter 2 of the IBC Code; or
- .2 regardless of the length of the ship, the damage stability requirements in part B-1 of chapter II-1 of the Convention, using the subdivision index R_{INF} as given below:

$$R_{INF} = R + 0.2(1 - R)$$

Chapter 3 - Fire safety measures

3.1 Fire safety measures of a Class INF 1 ship shall be to the satisfaction of the Administration.

3.2 Class INF 2 and 3 ships, regardless of their size, including cargo ships of less than 500 gross tonnage, shall be fitted with the following systems and equipment:

- .1 a water fire-extinguishing system complying with the requirements of regulation II-2/4 of the Convention;
- .2 fixed fire-extinguishing arrangements in machinery spaces of category A, as defined in regulation II-2/3.19 of the Convention, complying with the requirements of regulation II-2/7 of the Convention;
- .3 fixed cargo space cooling arrangements, complying with the requirements of regulation II-2/54.2.1.3 of the Convention; and
- .4 a fixed fire-detection and fire alarm system, protecting the machinery spaces, accommodation and service spaces, complying with the requirements of regulation II-2/13 of the Convention.

3.3 In a Class INF 3 ship, accommodation spaces, service spaces, control stations and machinery spaces of category A shall be fitted either forward or aft of the cargo spaces, due regard being paid to the overall safety of the ship.

Chapter 4 - Temperature control of cargo spaces

4.1 In Class INF 1, 2 and 3 ships:

- .1 adequate ventilation or refrigeration of enclosed cargo spaces shall be provided so that the average ambient temperature within such spaces does not exceed 55°C at any time;
- .2 ventilation or refrigeration systems serving cargo spaces intended for the transport of INF cargo shall be independent of those serving other spaces; and
- .3 those items essential to operation, such as fans, compressors, heat exchangers, cooling water supply, shall be provided in duplicate for each cargo space and spare parts shall be available, to the satisfaction of the Administration.

Chapter 5 - Structural consideration

5.1 The structural strength of deck areas and support arrangements shall be designed, taking account of the high loading which is to be sustained. In existing ships, the structural strength shall be evaluated with a view to limiting the locations where packages may be stowed.

Chapter 6 - Cargo securing arrangements

6.1 Adequate permanent securing devices shall be provided to prevent movement of the packages within the cargo spaces. In designing permanent devices, due consideration shall be given to the orientation of the packages and the following ship acceleration levels shall be taken into account:

1.5 g longitudinally;

1.5 g transversely;

1.0 g vertically up;

2.0 g vertically down.

6.2 Alternatively, where packages are carried on the open deck or a vehicle deck, they shall be secured in accordance with the principles of safe stowage and securing of heavy unitized and wheel-based (rolling) cargo approved by the Administration based on the guidelines developed by the Organization*.

6.3 Collision chocks, where used, shall be so arranged that they will not interfere or prevent cooling air flow which may be necessary under the provisions of 4.1.

* Refer to:

- .1 the Code for the Safe Practice for Cargo Stowage and Securing adopted by the Assembly of the Organization by resolution A.714(17);
- .2 the Guidelines for Securing Arrangements for the Transport of Road Vehicles on Ro-ro Ships adopted by the Assembly of the Organization by resolution A.581(14);
- .3 MSC/Circ.385 on the Cargo Securing Manual; and
- .4 MSC/Circ.745 on the Guidelines for the preparation of the Cargo Securing Manual.

Chapter 7 - Electrical power supplies

- 7.1 The electrical power supplies in a Class INF 1 ship shall be to the satisfaction of the Administration.
- 7.2 In Class INF 2 and 3 ships:
- .1 an alternative source of electrical power, complying with the requirements of the international standards acceptable to the Organization*, shall be provided so that damage involving the main supply would not affect the alternative source; and
 - .2 the power available from the alternative source shall be sufficient to supply the following services for at least 36 hours:
 - .2.1 the equipment provided for the flooding and cooling arrangements referred to in 3.2.3 and 4.1; and
 - .2.2 all emergency services required by the Convention.
- 7.3 In a Class INF 3 ship, the alternative source referred to in 7.2.1 shall be located outside the extent of any damage envisaged under chapter 2.

Chapter 8 - Radiological protection

Depending upon the characteristics of the INF cargo to be carried and upon the design of the ship, additional arrangements or equipment for radiological protection shall, if necessary, be provided to the satisfaction of the Administration.

Chapter 9 - Management and training

Management and training for a ship carrying INF cargo shall be to the satisfaction of the Administration taking into account developments in the Organization.

Chapter 10 - Shipboard emergency plan

- 10.1 Every ship carrying INF cargo shall carry on board a shipboard emergency plan.
- 10.2 Such a plan shall be approved by the Administration based on the Guidelines developed by the Organization** and written in a working language or languages understood by the master and officers. At a minimum, the plan shall consist of:
- .1 the procedure to be followed by the master or other persons having charge of the ship to report an incident involving INF cargo, as required by chapter 11 of this Code;

* Refer to the Recommendations published by the International Electrotechnical Commission and in particular to Publication 92-Electrical Installations in Ships.

** Refer to "Guidelines for Developing Shipboard Emergency Plans for Ships Carrying Materials Subject to the INF Code" adopted by the Assembly of the Organization by resolution A.854(20).

- .2 the list of authorities or persons to be contacted in the event of an incident involving INF cargo;
- .3 a detailed description of the action to be taken immediately by persons on board to prevent, reduce or control the release, and mitigate the consequences of the loss, of INF cargo following the incident; and
- .4 the procedures and points of contact on the ship for co-ordinating shipboard action with national and local authorities.

10.3 If a ship is required to have a shipboard emergency plan by other international instruments, the various plans may be combined into a single plan entitled "Shipboard Marine Emergency Plan".*

Chapter 11 - Notification in the event of an incident involving INF cargo

11.1 The reporting requirements of regulation VII/7-1 of the Convention shall apply both to the loss or likely loss of INF cargo overboard and to any incident involving a release or probable release of INF cargo, whatever the reason for such loss or release, including for the purpose of securing the safety of the ship or saving life at sea.

11.2 Such a report shall also be made in the event of damage, failure or breakdown of a ship carrying INF cargo which:

- .1 affects the safety of the ship, including but not limited to, collision, grounding, fire, explosion, structural failure, flooding and cargo shifting; or
- .2 results in the impairment of the safety of navigation, including the failure or breakdown of steering gear, propulsion system, electrical generating system, and essential shipborne navigational aids.

* Refer to the Guidelines for a structure of an integrated system of contingency planning for shipboard emergencies, adopted by the Assembly of the Organization by resolution A.852(20).

APPENDIX

Form of International Certificate of Fitness for the Carriage of INF Cargo^{*}

INTERNATIONAL CERTIFICATE OF FITNESS FOR THE CARRIAGE OF INF CARGO

(Official seal)

issued under the provisions of

THE CODE FOR THE SAFE CARRIAGE OF IRRADIATED NUCLEAR FUEL,
PLUTONIUM AND HIGH-LEVEL RADIOACTIVE WASTES
ON BOARD SHIPS (INF CODE)
(resolution MSC ... (...))

under the authority of the Government of

.....

(full official designation of country)

by.....

*(full designation of the competent person or organization
recognized by the Administration)*

*Particulars of ship^{**}*

Name of ship

Distinctive number or letters

Port of registry

Gross tonnage

IMO number

INF class of ship (1.1.2 of the Code)

^{*} The certificate must be drawn up in the official language of the issuing country. If the language used is neither English, French nor Spanish, the text should include a translation into one of these languages.

^{**} Alternatively, the particulars of the ship may be placed horizontally in boxes.

THIS IS TO CERTIFY:

- 1 that the ship has been surveyed in accordance with the provisions of 1.3.1 of the Code; and
- 2 that the survey showed that the structure, equipment, fittings, arrangements and material of the ship complied with the applicable provisions of the Code.

This certificate is issued subject to the provisions of 1.3.4 of the Code.

Issued at
(*place of issue of Certificate*) (date)

The undersigned declares that he is duly authorized by the said Government to issue this Certificate.

.....
(signature of official issuing the Certificate
and/or seal of issuing authority)

ANNEX 21

**RESOLUTION MSC.77(69)
(adopted on 13 May 1998)**

**MAINTENANCE OF A CONTINUOUS LISTENING WATCH ON VHF CHANNEL 16 BY
SOLAS SHIPS WHILST AT SEA AFTER 1 FEBRUARY 1999 AND INSTALLATION
OF VHF DSC FACILITIES ON NON-SOLAS SHIPS**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO that regulation 12.3, chapter IV of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended in 1988, requires that until 1 February 1999 or until such other date as may be determined by the Maritime Safety Committee, every ship while at sea shall maintain, when practicable, a continuous listening watch on VHF channel 16,

RECALLING FURTHER MSC/Circ.803 on participation of non-SOLAS ships in the Global Maritime Safety and Distress System (GMDSS),

NOTING that a large number of vessels to which the SOLAS Convention does not apply may not have fitted GMDSS equipment by 1 February 1999 and, if watchkeeping was discontinued on VHF channel 16 by SOLAS Convention ships, such non-Convention vessels would, if in distress, be unable to alert Global Maritime Distress and Safety System (GMDSS)-fitted ships,

NOTING ALSO the time needed for the large number of non-Convention ships being required to carry a radio installation under national legislation, to be fitted with a VHF installation which includes DSC facilities, and to provide adequate GMDSS training for the large number of personnel required to operate the radio equipment of non-Convention ships,

NOTING FURTHER the many parts of the world, not covered by VHF coast stations, where distress alerts can only be received by ships in the vicinity of those in distress,

RECOGNIZING the capability of GMDSS-fitted ships to simultaneously maintain continuous listening watch on VHF channel 16 and for digital selective calling (DSC) on VHF channel 70,

BEING OF THE OPINION that, for the time being, safety of life at sea would best be served by retaining watchkeeping for GMDSS-fitted ships on VHF channel 16 so that all ships can establish and conduct communications with each other for distress and safety purposes,

HAVING CONSIDERED, at its sixty-ninth session, the recommendation made by the Sub-Committee on Radiocommunications and Search and Rescue (COMSAR), at its third session, with respect to the continuation of listening watch by GMDSS-fitted ships,

1. DETERMINES, in accordance with regulation IV/12.3 of the SOLAS Convention, that all GMDSS ships, while at sea, shall continue to maintain, when practicable, continuous listening watch on VHF channel 16 until 1 February 2005;

2. URGES Governments:

- .1 to require all new VHF radio equipment manufactured for, or installed on or after 1 February 1999 on, seagoing vessels to which the 1974 SOLAS Convention does not apply to be fitted with facilities capable of transmitting and receiving distress alerts by DSC on VHF channel 70;
- .2 to require all seagoing vessels to which the 1974 SOLAS Convention does not apply, but which are required to carry a radio installation under national legislation, to be fitted with a radio installation which includes facilities for transmitting and receiving distress alerts by DSC on VHF channel 70 no later than 1 February 2005;
- .3 to encourage seagoing vessels being voluntarily fitted with VHF radio equipment to be fitted also with facilities for transmitting and receiving distress alerts by DSC on VHF channel 70 no later than 1 February 2005; and
- .4 to require all vessels being fitted with facilities in accordance with sub-paragraph .1 to .3 above, to maintain, when practicable, a continuous listening watch on VHF channel 16 until 1 February 2005, and to require personnel operating such equipment to be adequately trained, taking into account ITU Resolution 343 (WRC-97);

3. INVITES Governments to bring this decision to the attention of all seafarers, fishing vessel personnel, shipowners, ship operators, the off-shore industries, radio equipment manufacturers, coast stations and all others involved or who may be involved in search and rescue operations at sea;

4. INVITES FURTHER the Secretary-General to bring this resolution to the attention of the Secretary-General of the International Telecommunication Union.

ANNEX 22

WORK PROGRAMMES OF THE SUB-COMMITTEES

SUB-COMMITTEE ON BULK LIQUIDS AND GASES (BLG)

		Target completion date/number of sessions needed for completion	Reference
1	Evaluation of safety and pollution hazards of chemicals and preparation of consequential amendments	Continuous	BLG 1/20, section 3
H.1	Additional safety measures for tankers	1998	MSC 63/23, paragraph 18.4
H.2	Tanker pump-room safety	1999	BLG 1/20, paragraphs 4.12 to 4.14; MSC 69/22, paragraph 4.3
H.3	Revision of MARPOL regulations I/22 to 24 in the light of the probabilistic methodology for oil outflow analysis	1999	BLG 1/20 paragraphs 8.7 to 8.11
H.4	Review of Annexes I and II of MARPOL 73/78	2000	BLG 1/20, section 9
H.5	Environmental and safety aspects of alternative tanker designs under MARPOL 73/78 regulation I/13F		
.1	development of the final guidelines	2 sessions	BLG 1/20, paragraph 8.15
.2	assessment of the alternative tanker designs	Continuous	BLG 1/20, section 16
H.6	Revision of carriage requirements for carbon disulphide in the IBC Code	1998	MSC 66/24, paragraph 21.29

Note: 1 "H" means a high priority item and "L" means a low priority item. However, within the high and low priority groups, items have not been listed in any order of priority.

2 Items printed in bold letters have been selected for the provisional agendas of the forthcoming sessions of the sub-committees.

Sub-Committee on Bulk Liquids and Gases (BLG) (continued)

		Target completion date/number of sessions needed for completion	Reference
H.7	Requirements for personnel protection involved in transportation of cargoes containing toxic substances in oil tankers	1998	BLG 1/20, section 12
H.8	Alignment of the cargo hose requirements in the BCH, IBC and IGC Codes	2 sessions	MSC 68/23, paragraph 20.8
H.9	Review of MARPOL regulation I/13G on oil tankers	1998	MEPC 41/20, paragraph 18.6; MSC 69/22, paragraph 20.8.2
H.10	Hydrostatic balance loading	1998	MEPC 41/20, paragraph 19.7; MSC 69/22, paragraph 20.8.3
L.1	Review of existing ships' safety standards: amendments to SOLAS regulations VII/9 and VII/12	1998	MSC 65/25, paragraphs 21.6 to 21.8
L.2	Review of specifications for crude oil washing systems	1998	BLG 1/20, paragraph 9.7
L.3	Revision of chapter 8 of the IBC Code in the light of the revised SOLAS regulation II-2/59	1998	MSC 66/24, paragraph 21.31
L.4	Development of a code on polar navigation (co-ordinated by DE)	2 sessions	MSC 68/23, paragraph 20.4; MSC 69/22, paragraph 20.13
L.5	Application of MARPOL requirements to FPSOs and FSUs	3 sessions	MEPC 41/20, paragraph 7.7; MSC 69/22, paragraph 20.8.1

SUB-COMMITTEE ON DANGEROUS GOODS, SOLID CARGOES AND CONTAINERS (DSC)

		Target completion date/number of sessions needed for completion	Reference
1	Harmonization of the IMDG Code with the UN Recommendations on the Transport of Dangerous Goods	Continuous	MSC 63/23, paragraph 10.6
2	Reports on incidents involving dangerous goods or marine pollutants in packaged form on board ships or in port areas	Continuous	CDG 45/22, section 11 and paragraph 20.2
3	Amendments to the BC Code including evaluation of properties of solid bulk cargoes	Continuous	BC 34/17, section 3; DSC 2/16, paragraph 16.2.5.1
H.1	Amendment 30-99 to the IMDG Code, its annexes and supplements (EmS, MFAG)	1999	DSC 3/15, paragraph 12.6
H.2	Implementation of Annex III of MARPOL 73/78	1999	DSC 3/15, paragraph 12.6
H.3	Amendments to SOLAS chapters VI and VII to make the IMDG Code mandatory	1999	MSC 63/23, paragraph 22.29; MSC 66/24, paragraphs 4.31 and 9.28; MSC 68/23, paragraph 20.14
H.4	Revision of the format of the IMDG Code	1999	MSC 66/24, paragraph 9.15
H.5	Cargo Securing Manual	1 session	MSC 66/24, paragraphs 9.34 and 21.34
H.6	Implementation of IMO instruments and training requirements for cargo-related matters		
.1	revision of resolution A.537(13)	2000	DSC 3/15, paragraph 12.5

Sub-Committee on Dangerous Goods, Solid Cargoes and Containers (DSC) (continued)

		Target completion date/number of sessions needed for completion	Reference
	.2 development of an instrument for multimodal training requirements	1999	DSC 2/16, paragraph 13.10
H.7	Revision of the Emergency Schedules (EmS)	2002	DSC 3/15, paragraph 3.2.21
H.8	Review of the BC Code	2002	DSC 3/15, paragraph 12.7; MSC 69/22, paragraph 20.15
H.9	Ventilation requirements for packaged dangerous goods (in co-operation with FP)	2000	MSC 69/22, paragraph 20.16
H.10	Mandatory application of the INF Code	1999	MSC 69/22, paragraph 20.17
L.1	Guidelines for the development of shipboard emergency plans for marine pollutants	1 session ¹	CDG 42/22, section 9 and paragraph 20.2; DSC 2/16, paragraph 16.2.5.3

¹ To be decided by the MEPC

SUB-COMMITTEE ON FIRE PROTECTION (FP)

		Target completion date/number of sessions needed for completion	Reference
1	Analysis of fire casualty records	Continuous	FP 42/16, section 12
H.1	Comprehensive review of SOLAS chapter II-2	2000	FP 39/19, paragraphs 6.9 to 6.11; FP 42/16, section 6
H.2	Smoke control and ventilation	1 session	FP 39/19, section 9
H.3	Fire-fighting systems in machinery and other spaces	1999	MSC 64/22, paragraphs 7.27 and 19.35; FP 42/16, section 8
H.4	Ro-ro ferry safety: recommendation on evacuation analysis under SOLAS regulation II-2/28-1.3	1999	MSC 66/24, paragraph 21.38; FP 42/16, section 3
H.5	Revision of fire safety aspects of the HSC Code	1999	MSC 66/24, paragraph 21.27; FP 42/16, section 11
H.6	Fixed fire detection and fire alarm systems	1999	MSC 66/24, paragraph 6.19; FP 42/16, paragraph 13.3.4.1
H.7	Prohibition of the use of asbestos on board new ships	2000	MSC 68/23, paragraph 20.7; FP 42/16, paragraphs 2.6 to 2.9 and 13.3.4.2
H.8	Prohibition of the use of PFCs in shipboard fire-extinguishing systems	2000	MEPC 41/20, paragraph 8.14 MSC 69/22, paragraph 20.20

Sub-Committee on Fire Protection (FP) (continued)

		Target completion date/number of sessions needed for completion	Reference
H.9	Ventilation requirements for packaged dangerous goods (co-ordinated by DSC)	2000	MSC 69/22, paragraph 20.21
L.1	Role of human element: revision of resolution A.654(16) on Graphical symbols for fire control plans	1999	FP 39/19, paragraphs 13.7 to 13.10; FP 42/16, paragraph 13.3.4.3
L.2	Fire retardant materials for the construction of fishing vessel lifeboats	1 session	FP 38/24, paragraph 2.5.3
L.3	Development of a code on polar navigation (co-ordinated by DE)	2000	MSC 68/23, paragraph 20.4; FP 42/16, paragraph 13.3.4.4
L.4	Unified interpretations of SOLAS chapter II-2	2000	FP 38/24, annex 6; FP 42/16, section 7

SUB-COMMITTEE ON FLAG STATE IMPLEMENTATION (FSI)

		Target completion date/number of sessions needed for completion	Reference
1	Reporting on non-compliance with IMO instruments	Continuous	FSI 5/16, section 9
.1	deficiency reports	Continuous	MSC 67/22, paragraph 6.3
.2	mandatory reports under MARPOL 73/78	Continuous	FSI 5/16, paragraphs 9.11, 9.12, 8.9 and 8.10
.3	mandatory reporting procedures on port State control detentions	1999	MSC 68/23, paragraph 20.31
2	Casualty statistics and investigations	Continuous	FSI 5/16, section 10; MSC 67/22, paragraphs 6.4 to 6.8, 6.22 and 12.23
3	Port State control	Continuous	FSI 5/16, section 11; MSC 67/22, paragraphs 6.20 and 6.21
.1	regional co-operation	Continuous	FSI 5/16, paragraph 13.5
.2	results of inspections	Continuous	FSI 5/16, paragraph 13.5
.3	review of resolution A.787(19)	1999	FSI 5/16, paragraph 13.5; MSC 69/22, paragraph 20.30
.1	reporting formats	1998	FSI 5/16, paragraph 13.5
.2	tonnage issues	1998	FSI 5/16, paragraph 13.5
.3	ISM Code matters	1999	FSI 5/16, paragraph 13.5

Sub-Committee on Flag State Implementation (FSI) (continued)

		Target completion date/number of sessions needed for completion	Reference
	.4 amendments to paragraph 2.6.7 on accidental damage	1999	FSI 5/16, paragraph 13.5
4	Technical assistance	Continuous	FSI 5/16, section 10; MSC 67/22, paragraphs 11.1 to 11.3
5	Monitoring of actions taken by the Sub-Committee	Continuous	FSI 4/18, section 12
H.1	Survey and certification	Continuous	MSC 67/22, paragraph 19.5
	.1 guidelines for unscheduled inspections of ro-ro passenger ships	2000	MSC 66/24, paragraph 17.7 to 17.8; FSI 5/16, paragraph 13.6
	.2 revision of Survey guidelines (resolution A.746(18)) and Guidelines on surveys (resolution A.560(14))	2000	MSC 67/22, paragraph 19.20; FSI 5/16, paragraph 13.7
	.3 exemption certificates	1999	MSC 67/22, paragraph 3.25; FSI 5/16, paragraph 13.7
	.4 surveys of emergency towing arrangements	1998	MSC 68/23, paragraphs 20.25 to 20.29; MSC 69/22, paragraphs 20.31 to 20.33
	.5 servicing of inflatable liferafts and lifejackets under the HSSC	1 session	MSC 68/23, paragraph 20.30

Sub-Committee on Flag State Implementation (FSI) (continued)

		Target completion date/number of sessions needed for completion	Reference
H.2	Implementation of IMO instruments:		FSI 5/16, section 3; MSC 66/24, paragraphs 12.28 to 12.30;
	.1 responsibilities of Governments and measures to encourage flag State compliance	1999	FSI 5/16, paragraphs 3.16 to 3.42
	.2 comprehensive analysis of difficulties encountered in the implementation of IMO instruments	2000	MSC 69/22, paragraph 20.28
L.1	Introduction of the HSSC into MARPOL Annex VI on prevention of air pollution from ships	2 sessions	MEPC 41/20, paragraph 8.22.1; MSC 69/22, paragraph 20.29

SUB-COMMITTEE ON RADIOCOMMUNICATIONS AND SEARCH AND RESCUE (COMSAR)

		Target completion date/number of sessions needed for completion	Reference
1	Global Maritime Distress and Safety System (GMDSS)		COMSAR 3/14, section 3
.1	matters relating to the GMDSS Master Plan	Continuous	COMSAR 3/14, section 3
.2	replies to questionnaire on casualties	Continuous	COMSAR 1/30, paragraphs 3.15 to 3.16
.3	exemptions from radio requirements	Continuous	COMSAR 1/30, paragraph 3.17
2	Promulgation of maritime safety information (MSI) (in co-operation with ITU, IHO, WMO and Inmarsat)		
.1	operational and technical co-ordination provisions of Maritime Safety Information (MSI) services	Continuous	COMSAR 3/14, section 3
3	ITU World Radiocommunication Conference matters	Continuous	COMSAR 3/14, section 6
4	Radiocommunication ITU-R Study Group 8 matters	Continuous	COMSAR 3/14, section 6
5	Satellite services (Inmarsat and COSPAS-SARSAT)	Continuous	COMSAR 3/14, section 7
6	Matters concerning search and rescue, including those related to the 1979 SAR Conference and the introduction of the GMDSS		
.1	harmonization of aeronautical and maritime search and rescue procedures, including SAR training matters	1999	COMSAR 3/14, section 9

Sub-Committee on Radiocommunications and Search and Rescue (COMSAR) (continued)

		Target completion date/number of sessions needed for completion	Reference
	.2 plan for the provision of maritime SAR services, including procedures for routing distress information in the GMDSS	Continuous	COMSAR 3/14, section 9
	.3 revision of the IMOSAR and MERSAR manuals	1999	COMSAR 2/13, section 9.3
7	Emergency radiocommunications: false alerts and interference	1999	COMSAR 3/14, section 8
H.1	Work consequential to the 1988 GMDSS Conference		MSC 66/24, paragraphs 10.6 to 10.8 and 21.52; COMSAR 1/30, section 4
	.1 review of SOLAS regulation IV/15.7 and resolution A.702/(17) on Radio maintenance guidelines for the GMDSS related to sea areas A3 and A4	1999	COMSAR 1/30, paragraphs 4.32 to 4.36
	.2 review of the locating functions in the GMDSS	1 session	COMSAR 1/30, paragraph 4.26
H.2	VTS and automatic ship identification transponder/transceiver systems (co-ordinated by NAV)	1 session	MSC 66/24, paragraph 21.24.2; COMSAR 1/30, paragraphs 8.6 to 8.8
H.3	IMO standard marine communication phrases (co-ordinated by NAV)	1 session	COMSAR 1/30, section 23

Sub-Committee on Radiocommunications and Search and Rescue (COMSAR) (continued)

		Target completion date/number of sessions needed for completion	Reference
H.4	Ro-ro ferry safety: low-powered radio homing devices for liferafts (in co-operation with DE)	1999	MSC 66/24, paragraph 21.24.1; COMSAR 3/14, paragraph 5.5
H.5	Review of the Joint IMO/IHO/WMO MSI Manual	1 session	COMSAR 1/30, paragraph 5.9; COMSAR 3/14, paragraph 11.4.4.1
H.6	Revision of the HSC Code (co-ordinated by DE)	1999	MSC 66/24, paragraph 21.27; COMSAR 3/14, section 10
L.1	Safety of passenger submersible craft (co-ordinated by DE)	1 session	COMSAR 1/30, section 25
L.2	Development of a code on polar navigation (co-ordinated by DE)	2000	MSC 68/23, paragraph 20.4; COMSAR 3/14, paragraph 11.4.5.2
L.3	Development of criteria for general communications	2 sessions	COMSAR 3/14, paragraph 11.4.2.1 MSC 69/22, paragraph 20.36

SUB-COMMITTEE ON SAFETY ON NAVIGATION (NAV)

		Target completion date/number of sessions needed for completion	Reference
1	Routeing of ships, ship reporting and related related matters	Continuous	MSC 67/22, paragraphs 7.2 to 7.13 and 7.30 to 7.56; NAV 43/15, section 3
2	ITU matters, including Radiocommunication ITU-R Study Group 8 matters	Continuous	NAV 43/15, paragraphs 8.1 to 8.11
H.1	Revision of SOLAS chapter V 1998	NAV 43/15,	paragraphs 5.1 to 5.65
H.2	Ergonomic criteria for bridge equipment and layout	1 session*	NAV 43/15, paragraphs 6.1 to 6.3; MSC 69/22, paragraph 20.48
H.3	IMO standard marine communication phrases (in co-operation with COMSAR and STW)	1 session**	MSC 68/23, paragraphs 2.3 to 2.5
H.4	Development of measures complementary to the INF Code	1998	MSC 68/23, paragraphs 15.1 to 15.22; NAV 43/15, paragraphs 4.1 to 4.11
H.5	World-wide radio navigation system	2001	MSC 67/22, paragraphs 7.14 to 7.15; NAV 43/15, paragraphs 7.1 to 7.14
H.6	Revision of the HSC Code (co-ordinated by DE)	1999	MSC 68/23, paragraph 9.14

* The item is scheduled to be finalized in 1999.

** The item is scheduled to be finalized in 2000.

Sub-Committee on Safety on Navigation (NAV) (continued)

		Target completion date/number of sessions needed for completion	Reference
H.7	Performance standards for night vision equipment for high-speed craft	1999	MSC 68/23, paragraph 20.46; NAV 43/15, paragraph 12.2
H.8	Amendments to the COLREGs	2000	NAV 43/15, paragraphs 3.38 to 3.39; MSC 69/22, paragraph 20.46
H.9	Training and certification of maritime pilots and revision of resolution A.485(XII)(co-ordinated by STW)	1 session	MSC 69/22, paragraph 20.47
L.1	Electronic chart display and information systems	1998	NAV 43/15, paragraphs 7.15 to 7.29
L.2	Performance standards for navigation systems and equipment		NAV 43/15, paragraphs 7.30 to 7.49
.1	development of new performance standards for electromagnetic compasses	1998	NAV 43/15, paragraph 7.30; MSC 69/22, paragraph 20.40
.2	new performance standards for INS	1998	NAV 43/15, paragraphs 7.31 to 7.33
.3	performance standards for daylight signalling lamps	1999	MSC 67/22, paragraph 19.25
.4	performance standards for sound-reception systems	1998	NAV 43/15, paragraph 12.6; MSC 69/22, paragraph 20.39

Sub-Committee on Safety on Navigation (NAV) (continued)

		Target completion date/number of sessions needed for completion	Reference
L.3	Operational aspects of wing-in-ground (WIG) craft (co-ordinated by DE)	1998 paragraph 3.40	NAV 43/15,
L.4	Safety of passenger submersible craft (co-ordinated by DE)	1 session	NAV 42/23, paragraphs 15.1 to 15.5
L.5	Use and application of on-board computers (co-ordinated by DE)	1 session	NAV 42/23, paragraph 17.7
L.6	Development of a code on polar navigation (co-ordinated by DE)	2 sessions	MSC 68/23, paragraph 20.4

SUB-COMMITTEE ON SHIP DESIGN AND EQUIPMENT (DE)

		Target completion date/number of sessions needed for completion	Reference
H.1	Low-powered radio homing devices for liferafts on ro-ro passenger ships (co-ordinated by COMSAR)	1 session	MSC 66/24, paragraph 21.24.1; DE 41/17, section 4
H.2	Revision of the HSC Code (in co-operation with FP, COMSAR, NAV and SLF)	1999	MSC 66/24, paragraph 21.27; DE 41/17, section 5
H.3	Emergency towing arrangements for tankers	1999	MSC 68/23, paragraph 20.56; DE 41/17, section 13
H.4	Prohibition of the use of asbestos on board new ships	2000	MSC 68/23, paragraph 20.7; DE 41/17, paragraphs 16.16 to 16.20
H.5	Guidelines on helicopter landing areas (in co-operation with COMSAR)	1999	MSC 68/23, paragraph 9.8; DE 41/17, paragraphs 16.4 to 16.10
H.6	Development of a code on polar navigation (in co-operation with BLG, FP, COMSAR, NAV, SLF, STW and MEPC)	1 session	MSC 68/23, paragraph 20.4; DE 41/17, section 10
H.7	Guidelines under MARPOL Annex VI on prevention of air pollution from ships	2003	MEPC 41/20, paragraphs 8.22.1; MEPC 41/WP.5, paragraph 24.4
	.1 guidelines on representative samples of the fuel delivered for use on board ships		
	.2 guidelines for on-board NO _x monitoring and recording devices		

Sub-Committee on Ship Design and Equipment (DE) (continued)

		Target completion date/number of sessions needed for completion	Reference
H.8	Safety aspects of ballast water management	1999	MEPC 41/20; paragraphs 9.12; MSC 69/22, paragraph 20.54
L.1	Development of requirements for wing-in-ground (WIG) craft (in co-operation with NAV)	2000	DE 41/17, paragraphs 16.2 and 16.3
L.2	Safety of passenger submersible craft (in co-operation with FP, COMSAR, NAV and SLF)	1 session	DE 41/17, section 8
L.3	International approval procedures for life-saving appliances	1999	DE 41/17, paragraphs 11.9 to 11.10
L.4	Standards and requirements for thermal protective lifejackets	1999	MSC 66/24, paragraph 21.64; DE 41/17, paragraph 11.16
L.5	Guidelines under MARPOL Annex VI on prevention of air pollution from ships	2003	MEPC 41/20, paragraph 8.22.1; MEPC 41/WP.5, paragraph 24.3
	.1 guidelines on equivalent methods to reduce on-board NOx emission		
	.2 guidelines on on-board exhaust gas cleaning systems		
	.3 guidelines on other technological methods verifiable or enforceable to limit SOx emission		

SUB-COMMITTEE ON STABILITY AND LOAD LINES AND ON FISHING VESSELS SAFETY (SLF)

		Target completion date/number of sessions needed for completion	Reference
1	Analysis of intact stability casualty records	Continuous	SLF 30/18, paragraphs 4.16 and 4.17
2	Analysis of damage cards	Continuous	SLF 41/18, paragraph 17.5
3	Improved stability criteria and systematic model tests	Continuous	SLF 39/18, paragraph 15.4 and annex 7
H.1	Harmonization of damage stability provisions in IMO instruments (probabilistic method)		
	.1 development of revised SOLAS chapter II-1 parts A, B and B-1	1999	SLF 41/18, section 5
	.2 development of explanatory notes for harmonized SOLAS chapter II-1 parts A, B and B-1	2 sessions	SLF 41/18, paragraph 5.7; MSC 69/22, paragraph 20.60.1
H.2	Revision of technical regulations of the 1966 LL Convention	2000	SLF 41/18, section 6 paragraph 6.13
H.3	Revision of the fishing vessel Safety Code and Voluntary Guidelines	1999	SLF 41/18, section 7
H.4	Role of the human element		
	.1 guidelines for damage control plans	1999	SLF 41/18, section 9
H.5	Revision of the HSC Code (co-ordinated by DE)	1999	MSC 66/24, paragraph 21.24; SLF 41/18, section 10

Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety (SLF) (continued)

		Target completion date/number of sessions needed for completion	Reference
H.6	Amendments to the DSC Code : damage stability requirements for existing ro-ro passenger craft	2000	SLF 41/18, paragraph 10.3.1; MSC 69/22, paragraph 20.60.2
H.7	Guidance for shipboard stability management	2000	SLF 41/18, paragraph 3.7; MSC 69/22, paragraph 20.60.3
H.8	Interpretations of the 1966 LL Convention	1999	SLF 41/18, paragraph 6.6; MSC 69/22, paragraph 20.60.4
H.9	Safety aspects of ballast water management	1999	MEPC 41/20, paragraph 9.12; MSC 69/22 paragraph 20.61
L.1	Model stability booklets and loading manuals	1999	SLF 41/18, section 11
L.2	Harmonization of damage stability provisions in IMO instruments (probabilistic method)		
	.1 harmonization of damage stability provisions in other IMO instruments, including the 1993 Torremolinos Protocol	3 sessions	SLF 37/25, paragraph 22.2; MSC 65/25, paragraph 21.23; SLF 41/18, section 13
L.3	Development of a code on polar navigation (co-ordinated by DE)	2000	MSC 68/23, paragraph 20.4; SLF 41/18, paragraph 16.2 and 16.4

Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety (SLF) (continued)

		Target completion date/number of sessions needed for completion	Reference
L.4	Recommendations for the installation of partially weathertight hatchway covers on board container ships	2000	MSC 68/23, paragraph 20.60; SLF 41/18, paragraph 16.4
L.5	Review of the Intact Stability Code	Continuous	SLF 41/18, paragraph 3.14; MSC 69/22, paragraph 20.66

SUB-COMMITTEE ON STANDARDS OF TRAINING AND WATCHKEEPING (STW)

		Target completion date/number of sessions needed for completion	Reference
1	Validation of model training course content	Continuous	STW 29/14, paragraph 3.1
H.1	Training and certification of maritime pilots and revision of resolution A.485(XII) (in co-operation with NAV)	2000	STW 29/14, paragraphs 7.46 to 7.49; MSC 69/22, paragraph 20.71
H.2	IMO standard marine communication phrases (co-ordinated by NAV)	1 session*	STW 28/20, section 7
H.3	Follow-up action to the 1995 STCW Conference [including:]		STW 29/14
	.1 guidance regarding recognition of certificates (regulation I/10)	2002	STW 29/14, paragraph 7.51
	.2 review of chapter VII	2002	
	.3 clarification of STCW Convention and STCW Code provisions	2002	
	.4 review of training-related resolutions and circulars with a view to revoking	1999	MSC 68/23, paragraph 5.4; STW 29/14, paragraph 7.51
H.4	Follow-up action to the 1995 STCW-F Conference [including:]		STW 29/14, paragraph 8.6
	.1 progress report of the Joint FAO/ILO/IMO Working Group	1999	MSC 69/22, paragraph 20.73

* The item is scheduled to be finalized in 2000

Sub-Committee on Standards of Training and Watchkeeping (STW) (continued)

		Target completion date/number of sessions needed for completion	Reference
.2	<p>guidelines and recommendations based on the STCW Code specifically addressed to personnel on fishing vessels, including:</p> <ul style="list-style-type: none"> - the use of simulators; - training of radio operators; - proficiency in survival craft and rescue boats; - emergency occupational safety, medical care and safety functions; - watchkeeping; and - prevention of fatigue (resolution 3) 	1999	STW 29/14, paragraph 7.51
.3	recommendations for the training and certification of fishing vessel personnel on vessels of 12 metres in length and over but less than 24 metres (resolution 3)	1999	
.4	guidance on training, certification and watchkeeping standards for fishing vessel personnel serving on board large fishing vessels (resolution 6)	1999	
.5	requirements for officers in charge of an engineering watch and watchkeeping provisions (resolution 7)	1999	
.6	review of the recommendation on training of deck hands on board fishing vessels of 24 metres in length and over (resolution 4)	1999	

Sub-Committee on Standards of Training and Watchkeeping (STW) (continued)

		Target completion date/number of sessions needed for completion	Reference
	.7 clarification of STCW-F Convention requirements	Continuous	
H.5	Comprehensive review of resolution A.481(XII) on Principles of safe manning	1999	STW 29/14, paragraph 9.7
H.6	Medical standards for seafarers	2000	STW 29/14, paragraph 7.12; MSC 69/22, paragraph 20.72
L.1	Development of a code on polar navigation (co-ordinated by DE)	2000	MSC 68/23, paragraph 20.4

ANNEX 23

PROVISIONAL AGENDAS FOR THE FORTHCOMING SESSIONS OF THE SUB-COMMITTEES*

Sub-Committee on Bulk Liquids and Gases (BLG) - 3rd session

Opening of the session

- 1 Adoption of the agenda
- 2 Decisions of other IMO bodies
- 3 Additional safety measures for tankers
- 4 Tanker pump-room safety
- 5 Revision of MARPOL regulations I/22 to 24 in the light of the probabilistic methodology for oil outflow analysis
- 6 Review of Annexes I and II of MARPOL 73/78
- 7 Revision of carriage requirements for carbon disulphide in the IBC Code
- 8 Requirements for personnel protection involved in transportation of cargoes containing toxic substances in oil tankers
- 9 Review of existing ships' safety standards: amendments to SOLAS regulations VII/9 and VII/12
- 10 Review of specifications for crude oil washing systems
- 11 Revision of chapter 8 of the IBC Code in the light of the revised SOLAS regulation II-2/59
- 12** Evaluation of safety and pollution hazards of chemicals and preparation of consequential amendments
- 13 Review of MARPOL regulation I/13G on oil tankers
- 14 Hydrostatic balance loading
- 15 Work programme and agenda for BLG 4
- 16 Election of Chairman and Vice-Chairman for 1999
- 17 Any other business
- 18 Report to the Committees

* Agenda item numbers do not necessarily indicate priority.

** Item under continuous review.

Sub-Committee on Dangerous Goods, Solid Cargoes and Containers (DSC) - 4th session

Opening of the session

- 1 Adoption of the agenda
- 2 Decisions of other IMO bodies
- 3 Amendment 30-99 to the IMDG Code, its annexes and supplements (MFAG, etc.)
 - .1 harmonization of the IMDG Code with the UN Recommendations on the Transport of Dangerous Goods
 - .2 revision of the format of the IMDG Code
 - .3 revision of the Emergency Schedules (EmS)
- 4 Implementation of Annex III of MARPOL 73/78
- 5 Amendments to SOLAS chapters VI and VII to make the IMDG Code mandatory
- 6 Review of the BC Code, including evaluation of properties of solid bulk cargoes
- 7 Implementation of IMO instruments and training requirements for cargo-related matters
 - .1 revision of resolution A.537(13)
 - .2 development of an instrument for multimodal training requirements
- 8* Reports on incidents involving dangerous goods or marine pollutants in packaged form on board ships or in port areas
- 9 Ventilation requirements for packaged dangerous goods
- 10 Mandatory application of the INF Code
- 11 Work programme and agenda for DSC 5
- 12 Election of Chairman and Vice-Chairman for 2000
- 13 Any other business
- 14 Report to the Maritime Safety Committee

* Item under continuous review

Sub-Committee on Fire Protection (FP) - 43rd session

Opening of the session and election of Chairman and Vice-Chairman for 1999

- 1 Adoption of the agenda
- 2 Decisions of other IMO bodies
- 3 Comprehensive review of SOLAS chapter II-2
- 4 Ro-ro ferry safety: recommendation on evacuation analysis under SOLAS regulation II-2/28-1.3
- 5 Fixed fire detection and fire alarm systems
- 6 Prohibition of the use of asbestos on board new ships
- 7 Revision of fire safety aspects of the HSC Code
- 8 Fire-fighting systems in machinery and other spaces
- 9 Unified interpretations of SOLAS chapter II-2
- 10 Development of a code on polar navigation
- 11 Role of the human element: revision of resolution A.654(16) on Graphical symbols for fire control plans
- 12* Analysis of fire casualty records
- 13 Prohibition of the use of PFCs in shipboard fire-extinguishing systems
- 14 Ventilation requirements for packaged dangerous goods
- 15 Work programme and agenda for FP 44
- 16 Election of Chairman and Vice-Chairman for 2000
- 17 Any other business
- 18 Report to the Maritime Safety Committee

* Item under continuous review.

Sub-Committee on Flag State Implementation (FSI) - 6th session

Opening of the session

- 1 Adoption of the agenda
- 2 Decisions of other IMO bodies
- 3 Implementation of IMO instruments:
 - .1 responsibilities of Governments and measures to encourage flag State compliance
 - .2 comprehensive analysis of difficulties encountered in the implementation of IMO instruments
- 4* Survey and certification
 - .1 guidelines for unscheduled inspections of ro-ro passenger ships
 - .2 revision of Survey guidelines (resolution A.746(18)) and Guidelines on surveys (resolution A.560(14))
 - .3 exemption certificates
 - .4 surveys of emergency towing arrangements
- 5* Reporting on non-compliance with IMO instruments
 - .1 deficiency reports
 - .2 mandatory reports under MARPOL 73/78
 - .3 mandatory reporting procedures on port State control detentions
- 6* Casualty statistics and investigations
- 7* Port State control
 - .1 regional co-operation
 - .2 results of inspections

* Item under continuous review.

- .3 review of resolution A.787(19)
 - .1 reporting formats
 - .2 tonnage issues
 - .3 ISM Code matters
 - .4 amendments to paragraph 2.6.7 on accidental damage
- 8* Technical assistance
- 9 Work programme and agenda for FSI 7
- 10 Election of Chairman and Vice-Chairman for 1999
- 11 Any other business
- 12 Report to the Committees

* Item under continuous review.

Sub-Committee on Radiocommunications and Search and Rescue (COMSAR) - 4th session

Opening of the session

- 1 Adoption of the agenda
- 2 Decisions of other IMO bodies
- 3 Global Maritime Distress and Safety System (GMDSS)
 - .1* matters relating to the GMDSS Master Plan
 - .2 review of SOLAS regulation IV/15.7 and resolution A.702(17) on Radio maintenance guidelines for the GMDSS related to sea areas A3 and A4
 - .3* operational and technical co-ordination provisions of Maritime Safety Information (MSI) services
 - .4* exemptions from radio requirements
- 4 Ro-ro ferry safety: low-powered radio homing devices for liferafts
- 5* ITU maritime radiocommunication matters
 - .1 Radiocommunication ITU-R Study Group 8
 - .2 ITU World Radiocommunication Conference
- 6* Satellite services (Inmarsat and COSPAS-SARSAT)
- 7 Emergency radiocommunications: false alerts and interference
- 8 Matters concerning search and rescue, including those related to the 1979 SAR Conference and the introduction of the GMDSS
 - .1 harmonization of aeronautical and maritime search and rescue procedures, including SAR training matters
 - .2* plan for the provision of maritime SAR services, including procedures for routing distress information in the GMDSS
 - .3 revision of the IMOSAR and MERSAR manuals

* Item under continuous review

- 9 Revision of the HSC Code
- 10 Development of a code on polar navigation
- 11 Work programme and agenda for COMSAR 5
- 12 Election of Chairman and Vice-Chairman for 2000
- 13 Any other business
- 14 Report to the Maritime Safety Committee

Sub-Committee on Safety of Navigation (NAV) - 44th session

Opening of the session

- 1 Adoption of the agenda
- 2 Decisions of other IMO bodies
- 3 Routing of ships, ship reporting and related matters
- 4 Amendments to the COLREGs
- 5 Revision of SOLAS chapter V
- 6 Development of measures complementary to the INF Code
- 7 Navigational aids and related matters
 - .1 World-wide radio navigation system
 - .2 electronic chart display and information systems
 - .3 performance standards for night vision equipment for high-speed craft
 - .4 new performance standards for INS
 - .5 performance standards for daylight signalling lamps
 - .6 performance standards for sound-reception systems
 - .7 development of new performance standards for electromagnetic compasses
- 8 ITU matters, including Radiocommunication ITU-R Study Group 8 matters
- 9 Operational aspects of wing-in-ground (WIG) craft: possible amendments to COLREGs
- 10 Revision of the HSC Code
- 11 Work programme and agenda for NAV 45
- 12 Election of Chairman and Vice-Chairman for 1999
- 13 Any other business
- 14 Report to the Maritime Safety Committee

Sub-Committee on Ship Design and Equipment (DE) - 42nd session

Opening of the session

- 1 Adoption of the agenda
- 2 Decisions of other IMO bodies
- 3 International approval procedures for life-saving appliances
- 4 Revision of the HSC Code
- 5 Emergency towing arrangements for tankers
- 6 Prohibition of the use of asbestos on board new ships
- 7 Guidelines on helicopter landing areas
- 8 Development of requirements for wing-in-ground (WIG) craft
- 9 Standards and requirements for thermal protective lifejackets
- 10 Guidelines under MARPOL Annex VI on prevention of air pollution from ships
- 11 Safety aspects of ballast water management
- 12 Work programme and agenda for DE 43
- 13 Election of Chairman and Vice-Chairman for 2000
- 14 Any other business
- 15 Report to the Maritime Safety Committee

Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety (SLF) - 42nd session

Opening of the session

- 1 Adoption of the agenda
- 2 Decisions of other IMO bodies
- 3 Development of revised SOLAS chapter II-1 parts A, B and B-1
- 4 Revision of technical regulations of the 1966 LL Convention
- 5 Revision of the HSC Code
- 6 Guidelines for damage control plans
- 7 Revision of the fishing vessel Safety Code and Voluntary Guidelines
- 8 Model stability booklets and loading manuals
- 9 Amendments to the DSC Code: damage stability requirements for existing ro-ro passenger craft
- 10 Guidance for shipboard stability management
- 11 Interpretations of the 1966 LL Convention
- 12 Development of a code on polar navigation
- 13 Recommendations for the installation of partially weathertight hatchway covers on board container ships
- 14 Safety aspects of ballast water management
- 15 Work programme and agenda for SLF 43
- 16 Election of Chairman and Vice-Chairman for 2000
- 17 Any other business
- 18 Report to the Maritime Safety Committee

Sub-Committee on Standards of Training and Watchkeeping (STW) - 30th session

Opening of the session

- 1 Adoption of the agenda
- 2 Decisions of other IMO bodies
- 3 Validation of model training course content
- 4 Training and certification of maritime pilots and revision of resolution A.485(XII)
- 5 Follow-up action to the 1995 STCW Conference
- 6 Follow-up action to the 1995 STCW-F Conference
- 7 Comprehensive review of resolution A.481(XII) on Principles of safe manning
- 8 Development of a code on polar navigation
- 9 Medical standards for seafarers
- 10 Work programme and agenda for STW 31
- 11 Election of Chairman and Vice-Chairman for 2000
- 12 Any other business
- 13 Report to the Maritime Safety Committee

ANNEX 24

**STATEMENTS BY THE DELEGATIONS OF GREECE,
THE RUSSIAN FEDERATION AND TURKEY**

STATEMENT BY THE DELEGATION OF GREECE

The delegation of Greece wishes to state the following:

- 1 Navigation through the Strait of Istanbul, the Strait of Çannakale and the Marmara Sea (The Straits) is governed by International Law and the specific regime of the 1936 Montreux Treaty.
- 2 The basic principle established by the Montreux Treaty is the obligation to ensure the freedom of navigation through the Straits, which must be unhindered and expeditious.
- 3 IMO's competence with regard to ensuring the safety of navigation through The Straits and environmental protection must duly take into consideration the basic principle of the freedom of navigation and its regulations must be harmonized to that principle.

Therefore, national initiatives, whatever they might be, that refer to navigation through The Straits, must be in conformity with the basic principles of the Montreux Treaty (freedom of navigation, unhindered and expeditious passage) and relevant IMO regulations.

STATEMENT BY THE DELEGATION OF THE RUSSIAN FEDERATION

The Russian delegation expresses its satisfaction with Turkey's willingness to initiate discussion at NAV 44 and to co-operate with all users of the Straits with the view to ensuring both safety and freedom of navigation, as stated by the distinguished Turkish representative.

We understand that some provisions of the NAV 43 report, which remains on our table for action and which has been prepared, for various reasons, without the participation of Turkey, may raise objections from its side. The aim of this discussion, in our view, would be to listen to the arguments from all sides and to adopt mutually acceptable solutions.

While expressing satisfaction with the decision just taken to start preparation of a new report on all the aspects of safety of navigation and environmental protection, including a review of the IMO Rules and Recommendations, we do not exclude that this work might not be concluded, in spite of Captain Lameijer's effective chairmanship, during NAV 44. In such a case, this work should be continued at MSC 70. IMO has already lost too much time on the discussion of this issue. This is why now, when we see the first indications of a more constructive atmosphere around the issue of the Straits, it is important not to lose the momentum and to finalize the work in hand as soon as possible.

STATEMENT BY THE DELEGATION OF TURKEY

Turkey's readiness to initiate a discussion starting at NAV 44 in July has been acknowledged by the international maritime community. We would like to reiterate our willingness to co-operate with all users and related institutions and organizations with a view to enhancing maritime safety and the protection of the environment in the Turkish Straits. We hope that our legitimate concerns will be given due consideration during the discussion which will be initiated by Turkey. As to the report which was before the Committee, we believe that it failed to reflect some technical concerns contributing to maritime safety in the Straits. In our view some of the recommendations contained in the report weaken rather than strengthen the already existing regulations. We, therefore, do not wish to see similar recommendations repeated in various forms during the new exercise. We expect that everybody will participate in the new discussion in good faith and with the aim of avoiding zero sum games. We understand the importance of freedom of navigation and we do believe that an exercise with the initiation and participation of Turkey could address not only the concerns of the users but mainly the concerns of the only coastal State, Turkey. Turkey has taken important steps to deal with some of the shortcomings. We have revised the national regulations and we do believe that the traffic separation schemes together with the associated rules and regulations have proved effective. Only 3.7% of the vessels, which pass through the Straits, have had certain delays out of 50,000 vessels. We, therefore, believe that Turkey is doing its part and we will continue to speed up the activities to establish the VTS system after which we can assess the situation properly.
